CHAPTER 3 – WATER AND CONTAMINANT DISCHARGES

The notified discharge rules sought to improve on those in the existing Water Plan by using an effects-based rather than an activity-based approach. Effects that would always be considered intolerable were proposed to be prohibited, while discharges with no more than minor adverse effect would be permitted.

Submitters identified a number of issues with the notified rules, and we have taken their concerns on board in proposing a redraft of the discharge rules in this chapter.

3.1 A revised structure for the rules

The notified plan change amended the structure of discharge rules.

Provisions in sections 12.A and 12.B for discharges including discharges of human sewage, hazardous substances, and discharges from industrial or trade premises, were retained largely unchanged. Section 12.C sets general discharge rules that focus on the effects of discharges on water quality.

The notified introductory note box for sections 12.A to 12.C explained how the discharge rule framework worked. The note box had no regulatory effect.

We considered the submissions presented, and recommend making changes that improve clarity and consistency.

3.1.1 Recommendations

(a) Turn the note boxes under section "12A – 12.C Introduction…" and section 12.C into Rules 12.A.A.1, 12.B.A.1, 12.C.A.1 and 13.5.A.1, in order to give legal effect to these note boxes:

~~**12.A – 12.C Introduction to discharges of contaminants or water**~~

~~**How the rule framework applies:**~~

~~Section 12.A applies to any discharge that contains human sewage.~~

~~Section 12.B applies to any discharge that contains a hazardous substance, hazardous waste or other contaminant specified in the rules, including:~~

- ~~Herbicides, pesticides, fertiliser.~~
- ~~Tracer dye.~~
- ~~Sullage, cooling water, water supplies, pools, water used for holding live organisms.~~
- ~~Stormwater (runoff from impervious surfaces).~~
- ~~Discharges from industrial and trade premises.~~

~~If a discharge contains both human sewage and a hazardous substance, waste or specified contaminant, then rules in both 12.A and 12.B must be met.~~

~~Section 12.C applies to any other discharge not specifically provided for in Sections 12.A or 12.B.~~

12.~~6~~A Discharge of human sewage

12.A.A General Rules for section 12.A

12.A.A.1 The discharge rules in section 12.A apply where a discharge contains human sewage.

12.A.A.2 The discharge rules in sections 12.A and 12.B apply where a discharge:

(a) Contains both human sewage and a contaminant provided for in section 12.B; or

(b) Contains human sewage and is from an industrial or trade premises, or a consented dam.

12.~~7~~B Discharge of ~~pesticides~~ hazardous substances, hazardous wastes, ~~other~~ specified contaminants, and stormwater; and discharges from industrial ~~and~~ or trade premises and consented dams

12.B.A General Rules for section 12.B

12.B.A.1 The discharge rules in section 12.B apply where a discharge:

(a) Contains a contaminant provided for in section 12.B; or

(b) Is from an industrial or trade premises or consented dam.

12.B.A.2 The discharge rules in sections 12.A and 12.B apply where a discharge:

(a) Contains both human sewage and a contaminant provided for in section 12.B; or

(b) Contains human sewage and is from an industrial or trade premises, or a consented dam.

12.C Other discharges

~~Note: 1. Section 12.C applies to any discharge not specifically provided for in Sections 12.A or 12.B.~~

~~2. Under the Regional Plan: Water, reclamation and deposition of cleanfill associated with works in the bed of a lake or river, or wetland, are addressed through disturbance rules in Section 13.5, and not through discharge rules in Section 12.C.~~

12.C.A General Rules for section 12.C

12.C.A.1 Discharge rules in section 12.C apply to any discharge not provided for in sections 12.A, 12.B or 13.5.

13.5 Alteration of the bed of a lake or river, *or of a Regionally Significant Wetland*

13.5.A General rules for Section 13.5

13.5.A.1 Discharges of bed material resulting from the alteration of the bed of a lake or river, or a Regionally Significant Wetland, are addressed only through rules in section 13.5.

Note: Alteration includes any disturbance, and the associated remobilisation (discharge) and redeposition (deposit) of bed material ~~sediments~~ already present, reclamation or deposition of cleanfill associated with works in the bed. ~~Under the Regional Plan: Water, reclamation and deposition of cleanfill associated with works in the bed of a lake or river, or wetland, are addressed through disturbance rules in Section 13.5, and not through discharge rules in Section 12.C~~.

(b) Amend the heading to 12.B in order to explicitly include discharges from consented dams in this section:

12.~~7~~B Discharge of ~~pesticides~~ hazardous substances, hazardous

wastes, ~~other~~ specified contaminants, and stormwater; and discharges from industrial ~~and~~ or trade premises and consented dams

(c) Add new rule 12.C.A.2 in order to clarify the priority between the rules in section 12.C:

12.C.A.2 Within section 12.C, prohibited activity rules prevail over any permitted, controlled, restricted discretionary and discretionary activity rules.

3.1.2 Reasons

- **How the sections work together**

Turning the note box under the header for "12A – 12.C Introduction…" into general rules gives legal weight to the content of the note box and ensures that the framework is applied consistently.

Discharge rules have also been placed in the relevant section and made consistent with the header of each section. This reduces uncertainty over the scope of each section.

- **Remobilisation**

Section 4.2.2 of this report describes the changes to the section 13.5 note box.

- **Priority between rules**

To avoid confusion over which rule prevails the activity status of a particular activity should be made clear with new Rule 12.C.A.2.

- **Consented dams**

Section 3.11.2 of this report describes the inclusion of discharges into section 12.B.

3.2 Rules in section 12.C

The rules in section 12.C focus on the effects of those discharges not covered in sections 12.A or 12.B. They address "rural discharges", and translate the effects based approach into a regulatory framework. Appendix 2 provides flowcharts of how the rules apply.

We recommend a variety of changes to rule numbering and content in this chapter. The table below identifies the contaminant or matter of interest, the adverse effects of that

matter, the revised rules that we recommend addressing the matter, and which sections of this report discuss the matter.

Matter	Description of adverse effects	New rule	Section of this report
Oil, grease film, scum or foam and objectionable odour in water	These effects are seen as gross and prevent people from enjoying water	12.C.0.1 (prohibited)	3.3
		12.C.1.1 (permitted)	3.3
		12.C.2 (restricted discretionary)	3.10
Floatable or suspended material other than sediment	These effects are seen as gross and prevent people from enjoying water	12.C.1.1 (permitted)	3.3
		12.C.1.2 (permitted)	3.7
		12.C.2.1 (restricted discretionary)	3.10
Sediment and visual change in receiving water's clarity	Sediment has an adverse effects on aquatic habitats	12.C.0.3 (prohibited)	3.3
		12.C.1.1 (permitted)	3.5
		12.C.1.2 (permitted)	3.7
		12.C.2.1 12.C.2.2 (restricted discretionary)	3.10
Nutrients: NNN, DRP, ammoniacal nitrogen, and bacteria: *E coli*	- Phosphorus and nitrogen can contribute to algal growth. This has an adverse effect on fish habitat, amenity and recreation values - Ammoniacal nitrogen is toxic to aquatic life - E coli is a measure that indicates toxicity, and therefore adversely affects contact recreation - Animal waste systems, silage storage and composting are important sources of those contaminants	12.C.0.2 (prohibited)	3.3
		12.C.1.1 (permitted) Schedule 16	3.6
		12.C.1.3 (permitted)	3.9
		12.C.2.1 12.C.2.2 (restricted discretionary)	3.10
		12.C.2.3 (restricted discretionary)	3.10
Flooding, erosion, land instability or property damage	- Can cause or exacerbate hazards, adversely affecting people and their environment	12.C.1.1 (permitted)	3.3
		12.C.1.2 (permitted)	3.3

Matter	Description of adverse effects	New rule	Section of this report
		12.C.3.1 (discretionary)	3.10
Discharges of water to water in another catchment	- Species may be introduced to areas where they are not already present - Water quality in the receiving catchment may be reduced - The mauri of the water may be adversely affected	12.C.1.1 (permitted)	3.8
		12.C.1.2 (permitted)	3.8
		12.C.3.1 (discretionary)	3.10
Changes to the water level range or hydrological function of a regionally significant wetland	- This can adversely affect the hydrological and habitat values.	12.C.1.1 (permitted)	3.8
		12.C.1.2 (permitted)	3.8
		12.C.3.1 (discretionary)	3.10

3.3 Prohibiting objectionable activities (section 12.C.0)

Notified section 12.C.0 prohibited discharges that were considered so objectionable that a resource consent would never have been granted.

We considered the submissions presented. We recommend changes that improve clarity and practicality, but ensure that inappropriate discharges continue to be prohibited.

3.3.1 Recommendations

(a) Delete notified Rule 12.C.0.1 and replace it with a permitted activity condition, in order to avoid prohibiting discharges with minor effects:

~~12.C.0.1 Any discharge of contaminants, where the discharge is about to enter water, that:~~
~~(i) Has an odour; or~~
~~(ii) Contains an oil or grease film, scum or foam, or floatable material,~~
~~is a ***prohibited*** activity.~~

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:

...

(d) Where the discharge first enters water in any lake, river, wetland or any open drain or water race that flows to a lake, river or wetland, the discharge:

...

(3) Does not have an odour, oil or grease, film, scum or foam; and
(4) Does not have floatable or suspended materials, other than inorganic sediment; and
...

(b) Amend notified Rule 12.C.0.2 in order to increase clarity and avoid prohibiting discharges with minor effects:

12.C.0.~~2~~1 ~~Any~~ The discharge of any contaminant~~s~~ to water, that ~~results in water~~ produces~~:~~
~~(i) Increasing in colour; or~~
~~(ii) Reducing in visual clarity; or~~
~~(iii)~~an objectionable ~~Developing an~~ odour~~;~~, or
~~(iv) Developing an~~ a conspicuous oil or grease film, scum or foam, in any:
(i) Lake, river or Regionally Significant Wetland; or
(ii) Drain or water race that flows to a lake, river or Regionally Significant Wetland; or
(iii) Bore or sump,
is a ***prohibited*** activity.

(c) Delete notified Rule 12.C.0.3 and replace it with a permitted activity condition, in order to avoid prohibiting discharges with minor effects:

~~12.C.0.3 Any discharge of water or contaminants to water, that results in flooding, erosion, land instability or property damage, is a ***prohibited*** activity.~~

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:
(a) The discharge does not result in flooding, erosion, land instability, or property damage; and
...

12.C.1.~~6~~.2 Notwithstanding Rule~~s~~ 12.C.1.1~~, 12.C.1.2 and 12.C.1.5~~, the discharge of water or any contaminant~~s listed in Schedule 16~~ from:
(i) A water race that does not convey irrigation runoff; or
(ii) A dam:
(1) P~~p~~ermitted under Rule 13.2.1.3 ~~12.3.2.1~~; and ~~or~~
(2) Not for the purpose of the storage of contaminants,
~~(ii) water supply transport system~~,
to any lake, river, wetland or any water race that flows to a lake, river or wetland ~~water, or to a Regionally Significant Wetland~~, is a ***permitted***

activity, providing:

...

(d) The discharge does not:

(1) Result in flooding, erosion, land instability or property damage; and ...

(d) Amend notified Rule 12.C.0.4 in order to increase clarity, and to avoid prohibiting unpreventable sediment mobilisation:

12.C.0.~~4~~3 Any discharge of sediment from disturbed land to water in any:

(i) Lake, river or Regionally Significant Wetland; or

(ii) Drain or water race that flows to a lake, river or Regionally Significant Wetland,

where no measure ~~has been~~ is taken to ~~avoid~~ mitigate sediment runoff, is a ***prohibited*** activity.

(e) Amend notified Rule 12.C.0.5 and delete notified Rule 12.C.1.4 in order to increase clarity and prohibit high risk activities:

12.C.0.~~5~~2 ~~Any~~ The discharge of any contaminant~~s~~ from an animal waste system, silage storage or a composting process:

(i) To any lake, river or Regionally Significant Wetland ~~a water body~~, or

(ii) To any drain or water race that connects to a lake, river or Regionally Significant Wetland; or

(iii) To the bed of any lake, river or Regionally Significant Wetland; or

~~(ii) To saturated land; or~~

(i~~i~~iv) To any bore or sump, ~~a conduit to water, or the bed of any lake or river, or Regionally Significant Wetland;~~ or

(~~i~~v) ~~That enters water from land~~ To land within 50 metres of:~~; or~~

(a) Any lake, river or Regionally Significant Wetland; or

(b) Any bore or sump; or

(vi) To saturated land; or

(vii) That results in ponding;

is a ***prohibited*** activity.

~~12.C.1.4 The discharge of contaminants from any animal waste system to land, is a ***permitted*** activity, providing:~~

~~(a) The discharge occurs more than 50 metres from any bore used to supply water for domestic needs or drinking water for livestock; and~~

~~(b) There is no discharge onto any other person's property without the other person's agreement.~~

3.3.2 Reasons

- **Use of the prohibited activity**

The prohibitions give effect to new Policies 7.B.2 and 7.D.3, and amended Objectives 7.A.1 and 7.A.2. They apply to discharges which are so objectionable that they would never be granted resource consents.

The prohibited activity rules as notified could have prohibited some discharges with no more than minor effects. As a result, the matters notified in 12.C.0.1 and 12.C.0.3 are incorporated as conditions to the permitted activity rules. Discharges that are not permitted but may not be objectionable now have a consent option available. See section 3.10 of this report. The qualifiers "objectionable" and "conspicuous" from Section 107 RMA have been added to new Rule 12.C.0.1.

Amended rules 12.C.0.2 and 12.C.0.3 target practices that have a high risk of adverse effects on water quality, and that would never be granted a consent. The prohibited activity status is therefore appropriate for those discharges.

- **Avoiding conflicts between rules**

Deleting notified Rule 12.C.0.1 removes any confusion with notified Rule 12.C.0.2.

Deleting notified rule 12.C.0.2(i) increasing in colour, and (ii) reducing in visual clarity also removes the inconsistency with new rules 12.C.0.3 and 12.C.1.1, both of which allow sediment to discharge to water.

New rule 12.C.A.2 clarifies that a prohibited activity rule prevails over any permitted, restricted discretionary or discretionary activity rule.

- **Scope of the prohibitions**

The objective of the plan change is to maintain or enhance water quality in Otago lakes, rivers, wetlands and groundwater. Therefore, it is appropriate to restrict the scope of the prohibited activity rules to discharges of contaminants that are likely to enter one of those water bodies, including Regionally Significant Wetlands.

The provisions in section 12.B address urban stormwater discharges and discharges from impervious road surfaces, that may or may not be through reticulated systems. The

prohibited activity rules do not apply to these discharges. However, they apply to irrigators, forestry companies or operators of permitted dams. Under the effects based approach, it is not appropriate to discriminate between different land uses.

- **Exceptional circumstances and emergencies**

Finally, the RMA provisions in Sections 18, 330, 330A, 330B, 341, 341A, 341B provide protection for people who breach the prohibited rules in emergency situations.

- **Discharges of sediment**

Notified Rule 12.C.0.4 prohibited the discharge of sediment to water if no measure had been taken to prevent that discharge. It is recommended that amended Rule 12.C.0.3 replaces "avoid" with "mitigate" and "if" with "where".

It is at the discretion of those undertaking activities which disturb land to choose a measure that mitigates sediment discharge to water. Any measure will need to ensure sediment discharges do not breach the permitted activity Rule 12.C.1.1, unless a consent has been obtained.

Chapter 13 of the Water Plan covers rules for land use on lake or river beds or Regionally Significant Wetlands. Any sediment release resulting from the disturbance of the bed of a lake or river or of a Regionally Significant Wetland is covered by these rules and is not subject to this prohibited activity rule. This is clarified by new Rule 13.5.A.1. See sections 3.1 and 4.2 of this report.

- **Discharges from animal waste systems, silage storage, or composting processes**

In the notified plan change, discharges from animal waste systems, silage storage or composting processes were addressed in two rules: 12.C.0.5 and 12.C.1.4. It is recommended to incorporate these two rules into amended Rule 12.C.0.2. Condition (b) of notified Rule 12.C.1.4 is deleted as it is a civil matter that is not required to be addressed in the Water Plan.

Other amendments to Rule 12.C.0.2 are made to increase clarity as to when these types of discharges will be prohibited. The word "conduit" is better defined.

Definitions of the terms "saturated land" and "ponding" are not included because it is sufficient to interpret words by their common meaning. Prohibited discharges have a high risk of adverse effects on lakes, rivers, Regionally Significant Wetlands and groundwater. Land management practices can prevent these discharges.

Discharges from offal pits and farm waste dumps to water are not covered in new Rule 12.C.0.2, but are addressed in Rules 12.C.0.1 and 12.C.1.1 (see notified consequential change to section 11.3.3.3). They are also covered in the Regional Plan: Waste for Otago.

- **Timeframes for prohibitions to take effect**

Section 87B(1)(c) of the RMA treats prohibited rules as discretionary until they become operative. The current operative Water Plan rules already strictly control various gross discharges, as conditions of permitted activities, and no consent has been granted for these activities in the past.

3.4 The permitted activity rule framework (section 12.C.1)

Section 12.C.1 of the notified plan change sought to permit any discharge to water that had no more than minor adverse effect on water quality. This was done in six permitted rules, which addressed various discharges.

We considered the submissions presented, and recommend the following:

- The permitted activity rule framework be made easier to follow by clarifying how the rules work together; and using the wording of the RMA; and
- The scope of the permitted rules be changed, to cover all the undesirable effects of discharges.

3.4.1 Recommendations

(a) Delete notified Rules 12.C.1.1, 12.C.1.2 and 12.C.1.5, and incorporate their content into new Rule 12.C.1.1 in order to clarify the meaning of the permitted rules and set a comprehensive general permitted discharge rule:

~~12.C.1.1 The discharge of sediment to water is a ***permitted*** activity, providing:~~

...

~~12.C.1.2 The discharge of a contaminant listed in Schedule 16 to:~~
~~(i) Water; or~~
~~(ii) Land in a manner that may enter water,~~

...

~~12.C.1.5 The discharge of water to water, or water to a Regionally Significant Wetland, that:~~

...

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:

...

(b) Add new Rule 12.C.1.1, and amend notified Rules 12.C.1.3 and 12.C.1.6 in order to clarify the meaning of the permitted rules and the interaction between them:

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:

...

(e) Any discharge of nitrogen also complies with Rule 12.C.1.3.

12.C.1.~~6~~.2 Notwithstanding Rule~~s~~ 12.C.1.1~~, 12.C.1.2 and 12.C.1.5~~, the discharge of water or any contaminant~~s listed in Schedule 16~~ from:

(i) A water race that does not convey irrigation runoff; or

(ii) A dam:

(1) P~~p~~ermitted under Rule 13.2.1.3 ~~12.3.2.1~~; and ~~or~~

(2) Not for the purpose of the storage of contaminants,

~~(ii) water supply transport system~~,

to any lake, river, wetland or any water race that flows to a lake, river or wetland ~~water, or to a Regionally Significant Wetland~~, is a ***permitted*** activity, providing:

...

12.C.1.3 The discharge of nitrogen[1] ~~from~~ onto or into land in circumstances which may result in nitrogen entering ~~to~~ groundwater, is a ***permitted*** activity, providing:

…

3.4.2 Reasons

- **Creating a comprehensive general permitted discharge rule**

New Rule 12.C.1.1 is a catch-all rule for discharges that are not covered by sections 12.A or 12.B, and highlights that the conditions of this permitted activity work together. This makes the rule framework easier to apply.

- **Using RMA wording**

Section 15(1) RMA precludes any person from discharging water or contaminants to water, or contaminants onto or into land in circumstances which may result in those contaminants entering water, unless expressly allowed by a rule in a regional plan, a resource consent, or regulations.

Using the wording of the RMA in the rules provides more certainty, as these words have been interpreted in case-law.

- **Clarifying interactions between the permitted activity rules**

The relationship between amended Rule 12.C.1.1, and Rule 12.C.1.3, which deals with nitrogen leaching to groundwater, is clarified through the addition of a condition to 12.C.1.1.

Amended Rule 12.C.1.2 provides an exception to amended Rule 12.C.1.1 and allows the discharge of contaminants already in water through a permitted activity dam or a water race. See section 3.7.2 for further discussion on this issue.

- **Discharges of water and discharges of contaminant**

Contaminant includes any substance, energy or heat that when discharged into water, changes the physical, chemical or biological condition of the water (Section 2 RMA).

In the plan change as notified, discharges of water and of contaminants were addressed in separate rules. However, water and contaminants are usually bound together: discharges of water can contain contaminants, and contaminants are often carried by water.

The merging of Rules 12.C.1.1, 12.C.1.2 and 12.C.1.5 into new rule 12.C.1.1 avoids confusion between discharges of contaminants and discharges of water.

3.5 Permitted sediment discharges

In addition to the notified prohibited activity Rules 12.C.0.2 and 12.C.0.4 (see section 3.3 of this report), the notified plan change permitted the discharge of sediment, providing a number of conditions were met.

We considered the submissions presented on the rules permitting sediment discharges. We recommend changes to make the permitted rule on sediment more workable and better aligned with the prohibited rules.

3.5.1 Recommendations

(a) Delete notified Rule 12.C.1.1 and add its conditions into new Rule 12.C.1.1 in order to provide for the discharge of sediment as part of the general permitted activity rule:

~~12.C.1.1 The discharge of sediment to water is a ***permitted*** activity, providing:~~

~~(i) After the cessation of rainfall on the site, the discharge does not cause sedimentation.~~

~~(ii) From 31 March 2017:~~

~~(a) More than one hour after rain ceases on the site the discharge shall not exceed water clarity of 40 nephelometric turbidity units, where the discharge is about to enter water.~~

~~(b) More than twelve hours after rains ceases on the site the discharge shall not exceed water clarity of 5 nephelometric turbidity units,~~

~~where the discharge is about to enter water.~~

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:

...

(d) Where the discharge first enters water in any lake, river, wetland, or any open drain or water race that flows to a lake, river or wetland, the discharge:

...

(2) Does not contain sediment that results in:

a. A visual change in colour or clarity; or

b. Noticeable local sedimentation,

in the receiving water; and

...

3.5.2 Reasons

- **Conflict between rules**

The conditions on colour or clarity in notified prohibited Rule 12.C.0.2 have been incorporated into the new permitted activity rule. This avoids conflict between these two rules. This also recognises that discharges of sediment with less than minor effect need to be provided for as a permitted activity.

- **Sediment limit relative to receiving water**

It is appropriate to measure the effect of sediment in the receiving water, rather than in the discharge before it enters water, as was the case in the notified rule. This allows the background quality of the receiving water to be considered.

People undertaking activities that result in a discharge of sediment to water are responsible for the effect their discharge has on receiving water. If there is a visual change in the receiving water, then the discharge is not permitted. If receiving water is already turbid and the discharge does not result in a visual change, then the discharge is permitted.

The test of changes in visual clarity permits some sedimentation to occur. Research has demonstrated that, under optimum conditions, "the median threshold for the detection of change in visual clarity is about 10-15%", and that "almost all people can detect a change of about 30%". *(MfE Water Quality Guidelines N°2: Colour and Clarity, 1994)*

Assessing sediment when the discharge enters water is easier than measuring the discharge before it enters water. This will make the rule simpler to apply for those undertaking activities, and for those enforcing the rules.

- **Narrative standard**

Changing numerical limits to narrative limits makes it easier for people undertaking activities to determine if they are meeting the permitted activity conditions. They can assess the change in clarity or colour by eye-sight, rather than assessing the water clarity in nephelometric turbidity units.

- **Protecting the water quality**

The plan change seeks to protect water quality in all Otago lakes, rivers, wetlands and groundwater. The permitted activity sediment control applies to discharges to lakes, rivers, wetlands, or to open drains or races that flow into one of those water bodies.

- **Reasonable mixing**

Reasonable mixing is not explicitly allowed for in this rule. The concerns behind requests for reasonable mixing are addressed through permission of some sedimentation to occur.

- **When should the standard apply?**

Deletion of the rainfall condition increases certainty about when the rule applies. The term "rain" is uncertain and can refer to anything from mist to storms. The standard on sediment discharges now applies during rain events. However, because lakes and rivers can be turbid after significant rain events, sediment discharges relative to the receiving water can be less stringently controlled during rain events.

It is not appropriate to apply the sediment standard only when rivers are below median flow, as is the case for other contaminants. See section 3.6 of this report. Sediment is unlike other contaminants that are flushed out at high flows. The effects of discharges of sediment are felt throughout the year.

- **Timeframe**

Existing Water Plan rules already strictly control sediment discharge, so application of these clearer rules must apply immediately. The notified rule which prohibited discharges resulting in water changing in visual clarity or reducing in colour would have had immediate effect.

- **Prohibiting and consenting sediment discharges**

See sections 3.3 and 3.10 of this report for discussion on sediment discharges which are prohibited or require consent.

3.6 Schedule 16 contaminants

The notified plan change permitted the discharge of nitrogen, phosphorus, ammoniacal nitrogen and *E coli* under Rule 12.C.1.2, provided they met limits specified in Schedule 16. Additionally, the input of these contaminants to water was controlled through notified Rules 12.C.0.5 and 12.C.1.4.

We considered the submissions presented on notified Rule 12.C.1.2 and Schedule 16, and recommend changes to make the rules on Schedule 16 contaminants more achievable, workable and clear; while still achieving Schedule 15 standards. These changes include amending the time when Schedule 16 limits apply: instead of applying "twelve hours after rain ceases on site", the limits will apply when the flows are at or below a reference flow based on median.

3.6.1 Recommendations

(a) Incorporate notified Rules 12.C.1.2 and 12.C.1.5 into amended Rule 12.C.1.1 and clarify where and when Schedule 16 limits apply:

~~12.C.1.2 The discharge of a contaminant listed in Schedule 16 to:~~
~~(i) Water; or~~
~~(ii) Land in a manner that may enter water,~~
~~is a ***permitted*** activity, providing that more than twelve hours after rain ceases on the site, the quantity of contaminant in the discharge does not exceed the limits given in Schedule 16, where the discharge is about to enter water.~~

~~12.C.1.5 The discharge of water to water, or water to a Regionally Significant Wetland, that:~~
~~(i) Does not discharge water from one catchment to another; and~~
~~(ii) Where it contains any of the contaminants listed in Schedule 16, the quantity of contaminant in the discharge does not exceed the limits given in Schedule 16,~~
~~is a ***permitted*** activity, providing:~~
~~(a) There is no change to the water level or hydrological function, or no damage to fauna, or New Zealand native flora in or on any Regionally Significant Wetland.~~

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:
...
(d) Where the discharge first enters water in any lake, river, wetland, or any open drain or water race that flows to a lake, river or wetland; the discharge:

(1) From 01 April 2020, does not exceed the relevant limits given in Schedule 16A, when, at the representative flow monitoring site, the water flow is at or below the reference flow indicated in Schedule 16B; and

...

(b) Amend the structure of Schedule 16, identify reference flow sites in a map (see Appendix 1) and representative flows at these flow sites, in order to clarify when Schedule 16 limits apply:

Schedule 16 Schedule of discharge limits for water quality

Schedule 16 describes the contaminant concentration limits that are applicable to discharges to lakes, rivers, wetlands and drains or races flowing to lakes, rivers or wetlands, in the catchments of each discharge limit area. Discharge Limit Areas 1 and 2 catchments are shown on the J-series Maps. Discharges of contaminants described in this Schedule are permitted under Rule 12.C.1.1(d)(1) as long as the concentration limits are not exceeded when, at the representative monitoring site, the water flow is at or below reference flow.

16A Discharge limits for water quality by discharge limit area

....

16B Representative monitoring sites and reference flows

Map 16B Representative flow monitoring sites for every part of Otago

[see map in Appendix 1]

Representative flow monitoring sites are shown on the Water Info website (http://water.orc.govt.nz/WaterInfo/Default.aspx).

Table 16B Reference flows at each representative flow monitoring site

Reference flows are fixed and have been calculated using median flow data from 01/01/2007 to 01/01/2013.
River flows for Otago are available on the Water Info website (http://water.orc.govt.nz/WaterInfo/Default.aspx).

Monitoring Flow Site	Reference flow (cumecs)

Bengerburn at Booths	0.37
Cardrona at Mt Barker	1.95
Catlins at Houipapa	2.34
Dart at The Hillocks	51.49
Kakanui at Clifton Falls Bridge	1.29
Leith at University Foot Bridge	0.34
Lindis at Ardgour Road	3.50
Lindis at Lindis Peak	3.51
Lovells Creek at SH1	0.14
Manuherikia at Campground	11.60
Manuherikia at Ophir	8.01
Matukituki at West Wanaka	44.99
Mill Creek at Fish Trap	0.35
Nevis at Wentworth Station	7.25
Pomahaka at Burkes Ford	15.48
Pomahaka at Glenken	7.00
Shag at Craig Road	0.65
Shotover at Peats	18.12
Silverstream at Taieri Depot	0.30
Taieri at Canadian Flat	2.45
Taieri at Outram	15.86
Taieri at Sutton	10.52
Taieri at Tiroiti	7.88
Taieri at Waipiata	6.02
Tokomairiro at West Branch Bridge	0.44
Waianakarua at Browns	0.78
Waikouaiti at Confluence	1.34
Waitahuna at Tweeds Bridge	1.55
Waiwera at Maws Farm	1.58

(c) Amend Schedule 16 in order to revise the Schedule 16 limits, areas and timeframes:

Schedule 16 Schedule of discharge limits for water quality

…

Discharge Limit Area 1 ǂ Catchments	Nitrate-nitrite nitrogen	Dissolved reactive phosphorus	Ammoniacal nitrogen	*Escherichia coli*
Timeframe	~~31 March 2019~~ 01 April 2020	~~31 March 2017~~ 01 April 2020		
▪ **Carey's Creek** ▪ **Catlins** ▪ ~~Fleming~~ ▪ **Kaikorai** ▪ **Leith** ▪ **Mokoreta** (within Otago) ▪ **Owaka** ▪ **Pomahaka**, downstream of Glenken ▪ **Tahakopa** ▪ ~~Tautuku~~ ▪ **Tokomairiro** ▪ **Tuapeka** ▪ **Waitahuna** ▪ **Waitati** ▪ **Waiwera** ▪ Any ~~other~~ unlisted tributary on the true right bank of the **Clutha/Mata-Au**, south of Judge Creek ▪ Any unlisted tributary on the true left bank of the **Clutha/Mata-Au**, south of the Tuapeka ▪ Any ~~other~~ unlisted catchment that discharges to the **coast**, south of ~~the Matau Branch of the Clutha River/Mata-Au~~ Taieri Mouth	~~0.45~~ 3.6 mg/l	~~0.03~~ 0.045 mg/l	~~0.1~~ 0.2 mg/l	~~126~~ 550 cfu/100 ml

Discharge Limit Area 2 ǂ Catchments	Nitrate-nitrite nitrogen	Dissolved reactive phosphorus	Ammoniacal nitrogen	*Escherichia coli*
Timeframe	~~31 March 2019~~ 01 April 2020	~~31 March 2017~~ 01 April 2020		
▪ ~~Arrow~~ ▪ **Cardrona** ▪ **Clutha/Mata-Au** (above	~~0.08~~ 1 mg/l	~~0.006~~ 0.035 mg/l	~~0.1~~ 0.2 mg/l	~~126~~ 550 cfu/100 ml

Luggate) ▪ **Clutha/Mata-Au** and any ~~other~~ unlisted tributary (Luggate to mouth, including Lake~~s Dunstan and~~ Roxburgh, and excluding tributaries described in Discharge Limit Area 1 catchments) ▪ **Fraser** ▪ **Kakanui** ▪ **Kawarau** ~~upstream of the Shotover confluence~~ ▪ **Lake Dunstan** ▪ **Lake Hawea** and any tributary ▪ **Lake Hayes** ▪ **Lake Johnson** ▪ **Lake Onslow** ▪ **Lake Tuakitoto** ▪ **Lake Waipori** & **Waihola** ▪ **Lake Wakatipu** and any tributary ▪ **Lake Wanaka** and any tributary ▪ **Lindis** ▪ **Luggate** ▪ **Manuherikia** ▪ **Mill Creek** (tributary to Lake Hayes) ▪ **Pomahaka,** upstream of Glenken ▪ **Shag** ▪ **Shotover** ▪ **Taieri** ▪ ~~Tokomairiro~~ ▪ **Trotters** ▪ **Waianakarua** ▪ **Waikouaiti** ▪ ~~Waitahuna~~ ▪ **Waipori** ▪ **Waitaki** tributaries within Otago ▪ Any ~~other~~ unlisted catchment that discharges to the **coast**, north of Taieri Mouth ~~the Matau Branch of the Clutha River/Mata-Au~~ ▪ ~~Any tributaries to Lakes~~				

~~Hawea, Wakatipu, and Wanaka~~ ▪ ~~Dart~~				

mg/l = milligrams per litre
cfu/100 ml = colony-forming units per 100 millilitres

~~‡Areas 1 and 2 are shown in Maps J1–J9.~~

(d) Amend the J-Series maps in order to reflect the changes to Schedule 16 discharge limit areas, as shown in Appendix 1, attached.

3.6.2 Reasons

- **The use of "reference flows" to determine when Schedule 16 limits apply**

River flows are considered a better indicator of environmental conditions than rainfall, as flows relate to both rainfall and the receiving environment's assimilative properties. Recreational contact and the risk of algal bloom are at their highest at low flows.

Land managers are given more certainty when Schedule 16 limits apply by attributing to every part of Otago a representative flow monitoring site in Map 16B.1 and defining a reference flow for each of these sites in Table 16B.1. The reference flows are fixed and are calculated using median flow data collected from 2007 to 2013.

Map 16B.1 and Table 16B.1 will also be available on the Water Info website, which already makes river flow data available.

- **Where the discharge limits apply**

Plan Change 6A seeks to protect water quality in all of Otago lakes, rivers, wetlands and groundwater. Schedule 16 limits therefore only apply to discharges to lakes, rivers, wetlands, or to open drains or races that flow in one of those water bodies, where the discharge first enters water in any one of those water courses. The limits apply to the discharge before any assimilation with the receiving water, and compliance is assessed at the point which gives the best indication of the discharge's contaminant concentration where the discharge is occurring.

- **Nitrogen and phosphorus**

Setting limits for nutrient concentrations in rivers and streams is complex. The concentrations at which nitrogen or phosphorus begin to have an adverse effect is highly site and catchment specific, and depends on many factors. The notified limits for nitrite-nitrogen (NNN) and dissolved reactive phosphorus (DRP) were equivalent to the notified receiving water standards in Schedule 15. This lessened the need to protect against

cumulative effects. However receiving waters have assimilative capacity and therefore the discharge limits should be reconsidered in terms of effects and achievability.

The amended limits are based on the sampling data collected by ORC as part of its Pomahaka study and used by AgResearch (McDowell et al. 2011): sampling results indicate that where discharges exceed the recommended values, it can usually be linked to poor management practices.

Setting the NNN limit at 3.6 mg/l for discharges in area 1 and at 1 mg/l for discharges in area 2 is considered appropriate. The toxicity guidelines (Hickey, C.W, Martin, M.L., 2009) assesses that a NNN concentration of 3.6 mg/l in lakes and rivers offers a 80% species protection, while a concentration in NNN of 1 mg/l in lakes and rivers offers a 99% species protection, from long term effects due to long term exposure.

The amended limits for DRP are derived from the 95th percentile of the SOE monitoring data, collected from July 2006 to June 2011, on Schedule 15 Water Quality Groups 1 and 2. The use of the 95th percentile keeps the limits within the values known to occur most of the time in the main water body, including assimilative factors.

Drainage sampling results show that these limits are achievable.

- **Ammoniacal nitrogen**

At high concentrations, ammoniacal nitrogen can be toxic and contributes to eutrophication. In farmed catchments, elevated concentrations generally arise from stock effluent reaching water through direct discharge, paddock run-off, or stock access to stream banks and beds. The effects are intensified when stream flows are low, or when stock are frequently near water bodies. Run-off and leaching of urea fertiliser can also contribute.

The notified limits for ammoniacal nitrogen were equivalent to the notified receiving water standards in Schedule 15. This lessened the need to protect against cumulative effects. However receiving waters have assimilative capacity and therefore the discharge limits have been reconsidered in terms of effects and achievability.

Again, the sampling results collected by ORC shows that the amended results are achievable under good management practices and will allow Schedule 15 targets to be met.

- **E coli**

Faecal contamination of water bodies poses a health risk to people and livestock. Faecal material reaches streams from effluent run-off and stock defecating directly into water. The risk of illness is primarily associated with recreational activities where water may be ingested through fish and other aquatic food. *E coli* is the indicator bacteria commonly used to assess presence of all bacterial, viral and protozoal pathogens that occur in faecal material.

The notified limits for *E coli* were equivalent to the notified receiving water standards in Schedule 15. This lessened the need to protect against cumulative effects. Limits for *E coli* need to protect against cumulative effects, but can allow for the use of some receiving water assimilative capacity, as long as contact recreation values are maintained. As such the discharge limits should be reconsidered in terms of effects and achievability.

The recommended amended discharge limit is 550 cfu/100ml. Sampling data show that this limit is achievable. It is also based on the MfE/MoH 2002 Microbiological water quality guidelines, and offers good protection to the secondary recreation values, even at the point of discharge.

- **Transition times**

The timeframe for meeting Schedule 16 limits has been extended from the notified dates to 1 April 2020. An eight-year transition time is considered appropriate for land managers to implement changes to their land management practices to meet the permitted discharge limits.

- **Catchment classification**

Catchments in Schedule 16 are classified into 2 areas, based on the frequency of higher flows that strip algae growth from its substrate. Area 1 has more of these flows, while Area 2 has less. As such, Schedule 16 discharge limits for nitrogen and phosphorus in Area 1 are higher. There is no difference in Schedule 16 discharge limits for ammoniacal nitrogen and *E coli* as those contaminants have adverse effects regardless of high flow frequency.

The catchment classification has been adjusted based on the Water Groups identified in Schedule 15. Those changes are discussed in section 2.2 of this report. The J-series maps have been adjusted accordingly, and have been amended to show the areas' boundaries.

3.7 Discharges from dams and water races

The notified plan change provided an exemption from the discharge limits, and permitted discharges of water to water, where the water was "passing through" water supply transport systems and permitted dams.

We considered the submissions presented, and recommend the scope of the "passing-through" rule be clarified.

3.7.1 Recommendations

(a) Amend notified Rule 12.C.1.6 in order to clarify the scope of the rule:

> 12.C.1.~~6~~.2Notwithstanding Rule~~s~~ 12.C.1.1~~, 12.C.1.2 and 12.C.1.5~~, the discharge of water or any contaminant~~s listed in Schedule 16~~ from:

(i) A water race that does not convey irrigation runoff; or
(ii) A dam:
(1) P~~p~~permitted under Rule 13.2.1.3 ~~12.3.2.1~~; and ~~or~~
(2) Not for the purpose of the storage of contaminants,
~~(ii) water supply transport system~~,
to any lake, river, wetland or any water race that flows to a lake, river or wetland ~~water, or to a Regionally Significant Wetland~~, is a ***permitted*** activity, providing:
(a) The race or dam operator has not caused the contaminant to be discharged into the race or dam from which it is discharged; and
(~~a~~b) There is no discharge of water from one catchment to water in another catchment; and
(~~f~~c) There is no change to the water level range or hydrological function of~~, or no damage to fauna, or New Zealand native flora in or on~~ any Regionally Significant Wetland; and
(d) The discharge does not:
(1) Result in flooding, erosion, land instability or property damage; and
(2) Result in a conspicuous change in colour or clarity; and
(3) Have floatable or suspended materials.
~~(b) The dam is not used for the storage of contaminants; and~~
~~(c) The presence of contaminants does not result from the damming activity or the activities of the dam operator; and~~
~~(d) The presence of contaminants does not result from the water transporting activity, or the activities of the water transporter; and~~
~~(e) The water supply transport system does not convey irrigation runoff; and~~
...

3.7.2 Reasons

- **Water being "passed through"**

Where a race or dam operator has not caused the contaminant to be discharged into the race or dam from which it is discharged, it is appropriate to permit the water to be "passed through". This applies to discharges from small permitted activity dams that are not used for the storage of contaminants, and to the surplus of water diverted for irrigation water supply. Note that a similar provision for discharges from larger consented dams is in section 12.B of the Water Plan. See section 3.11 of this report.

In the notified rule, permitted activity dams were defined in reference to rule 12.3.2.1, which permits the damming of water. They are now defined in reference to rule 13.2.1.3, which permits the building of dams on the bed of a lake or a river. This does not change the meaning of re-numbered Rule 12.C.1.2.

The term "water supply transport system" has been clarified and is now any water race that diverts and transports water without catching irrigation runoff.

Moving notified conditions (b) and (e) into the description of the activity clarifies that discharges from dams used for the storage of contaminants or from water races catching irrigation runoff need to meet the conditions of new Rule 12.C.1.1 to be permitted, or such discharges will require consent.

Conditions are added to the notified rule to ensure compliance with Section 70 RMA. The condition on flooding, erosion and property damage also results from the deletion of notified Rule 12.C.0.3 See section 3.3 of this report.

3.8 Inter-catchment transfers and discharges to Regionally Significant Wetlands

The notified plan change permitted discharges of water to water providing adverse effects on Regionally Significant Wetlands were no more than minor, and the discharges did not transfer water from one catchment to another.

We considered the submissions and evidence received and we recommend that these conditions be transferred to the permitted activity rules, and aligned with the wording in Plan Change 2: Regionally Significant Wetlands.

3.8.1 Recommendations

(a) Delete notified Rule 12.C.1.5 and incorporate its content into new Rule 12.C.1.1:

~~12.C.1.5 The discharge of water to water, or water to a Regionally Significant Wetland, that:~~

~~(i) Does not discharge water from one catchment to another; and~~

~~(ii) Where it contains any of the contaminants listed in Schedule 16, the quantity of contaminant in the discharge does not exceed the limits given in Schedule 16,~~

~~is a ***permitted*** activity, providing:~~

~~(a) There is no change to the water level or hydrological function, or no damage to fauna, or New Zealand native flora in or on any Regionally Significant Wetland.~~

12.C.1.1 The discharge of water or any contaminant to water, or onto or into land in circumstances which may result in that contaminant entering water, is a ***permitted*** activity, providing:

...

(b) There is no discharge of water from one catchment to water in another catchment; and

(c) The discharge does not change the water level range or hydrological

function of any Regionally Significant Wetland; and

...

(b) Amend notified Rule 12.C.1.6(f):

12.C.1.~~6~~.2Notwithstanding Rule~~s~~ 12.C.1.1~~, 12.C.1.2 and 12.C.1.5~~, the discharge of water or any contaminant~~s listed in Schedule 16~~ from:

(i) A water race that does not convey irrigation runoff; or

(ii) A dam:

(1) P~~p~~ermitted under Rule 13.2.1.3 ~~12.3.2.1~~; and ~~or~~

(2) Not for the purpose of the storage of contaminants,

~~(ii) water supply transport system,~~

to any lake, river, wetland or any water race that flows to a lake, river or wetland ~~water, or to a Regionally Significant Wetland~~, is a ***permitted*** activity, providing:

...

(~~a~~b) There is no discharge of water from one catchment to water in another catchment; and

(~~f~~c) There is no change to the water level range or hydrological function of~~, or no damage to fauna, or New Zealand native flora in or on~~ any Regionally Significant Wetland; and

...

3.8.2 Reasons

- **Effects of discharges of water to Regionally Significant Wetlands**

Condition (a) of notified Rule 12.C.1.5 and Condition (f) of notified Rule 12.C.1.6 required "no" change to the water level or hydrological function, and "no" damage to fauna, or NZ native flora in a Regionally Significant Wetland. This condition originated from notified Proposed Plan Change 2: Regionally Significant Wetlands. It is now appropriate to use the wording from the ORC Decisions on Proposed Plan Change 2: Regionally Significant Wetlands. The "hydrological function" and "water level range" of such a wetland should not be changed.

- **Inter-catchment transfers**

Issue 6.2.5 of the Water Plan recognises the possible adverse effects of inter-catchment transfers of water. It is consistent with the rest of the Water Plan not to permit those discharges, but to give them a consent option. See section 3.10 of this report.

3.9 Nitrogen loading

The notified plan change included a number of provisions that sought to manage nitrogen leaching to groundwater. Notified Rule 12.C.1.3 permitted the discharge of nitrogen to groundwater provided specified calculated leaching rates were not exceeded. These applied in various nitrogen sensitive zones, and in the rest of Otago, as shown in the notified I-series of the maps. Notified Rule 12.B.1.5 permitted the discharge of fertiliser, as long as the requirements of notified Rule 12.C.1.3 were met. See section 3.11 of this report.

We considered the submissions presented, and recommend amendments that increase the clarity of the relevant provisions and maps, and that relax the nitrogen leaching limits for specific areas within Otago.

3.9.1 Recommendations

(a) Amend Rule 12.C.1.3 in order to provide more clarity, and to revise the nitrogen leaching rates:

12.C.1.3 The discharge of nitrogen[1] ~~from~~ onto or into land in circumstances which may result in nitrogen entering ~~to~~ groundwater, is a ***permitted*** activity, providing:

(~~i~~a) From ~~31 March 2019~~01 April 2020, ~~calculated nitrogen~~the nitrogen leaching rate ~~by the Council using OVERSEER® version 6.0,~~ does not exceed:

(~~a~~i) 10 ~~kilograms nitrogen per hectare per year~~ kgN/ha/year on that area of the landholding located over the relevant ~~any~~ ~~n~~Nitrogen ~~s~~Sensitive ~~z~~Zone identified in Maps ~~I1-I6~~ H5 and H6; and

(ii) 20 kgN/ha/year on that area of the landholding located over the relevant Nitrogen Sensitive Zone identified in Maps H1 to H4; and

(~~b~~iii) 30 ~~kilograms nitrogen per hectare per year~~ kgN/ha/year on that area of the landholding located outside any Nitrogen Sensitive Zone identified in Maps H1 to H6, ~~elsewhere in Otago;~~ as calculated using OVERSEER® version 6.0; and

(~~ii~~b) From 1 May 2014, the landholder ~~Upon request, the person with responsibility for the management of the land supplies the~~ will:

(i) Maintain a record of all necessary data to run OVERSEER® version 6.0; and

(ii) Provide Council upon request with :

(1) An OVERSEER® version 6.0 output and input parameter report prepared by an accredited OVERSEER® version 6.0 user; or

(2) ~~a~~All necessary ~~annual input~~ data to run OVERSEER® version 6.0.

[1] For the purpose of Rule 12.C.1.3, ~~N~~nitrogen comprises of organic nitrogen, ammoniacal nitrogen, nitrite nitrogen and nitrate nitrogen forms.

(c) Amend the notified I-series maps, as shown in Appendix 1, by:

(i) Changing the labels of the notified I-series of the Maps to refer to the H-series;
(ii) Changing the legend of amended Maps H1-H6 to provide more clarity;
(iii) Adjusting the boundaries of the Ettrick and Roxburgh aquifers on amended Map H4;
(iv) Removing Taieri Aquifer Recharge Zone from notified Map I3; and
(v) Moving Wakatipu Aquifer from notified Map I5 to new Map H3.

3.9.2 Reasons

- **Transition times**

From 1 May 2014, landholders are required to make OVERSEER data available to the ORC. This data will only be requested for education and monitoring purposes until 1 April 2020.

The timeframe for meeting the nitrogen leaching limits has been extended to 1 April 2020. This is considered adequate time for landholders to reduce their nitrogen leaching loss by utilising recognised and proven management techniques. If landholders do not meet the leaching limits in the permitted activity rule by 1 April 2020, they may apply for consent which would allow more time to comply with the permitted rule.

- **Clarity and consistency**

Rule 12.C.1.3 has been amended to clarify the area over which the nitrogen leaching limits apply. The limits apply to the average value calculated over the entire landholding. Where the landholding is located over two different nitrogen leaching zones, a separate calculation will be required for each one.

The words "landholding" and "landholder" are defined in the glossary of the operative Water Plan.

Further amendments to the wording of Rule 12.C.1.3 achieve greater consistency with the RMA terminology and with the wording of the wider suite of rules in the amended section 12.C.

- **Nitrogen leaching limits and areas**

It is appropriate to change the notified nitrogen leaching limits, based on ORC's further modelling of nitrogen accumulation. The nitrogen leaching limit for the Kakanui-Kauru Aquifer, Shag Alluvium Aquifer, Ettrick and Roxburgh Aquifers, and the Wakatipu Aquifer should be raised from 10 kgN/ha/yr to 20 kgN/ha/yr. The nitrogen leaching limit for the Taieri Aquifer recharge zone should be brought in line with the 30 kgN/ha/yr limit that applies to the rest of Otago.

No further changes to the notified nitrogen leaching limits for specific areas in Otago are appropriate. It is not desirable to raise these limits on the nitrogen-sensitive zones identified on notified maps I5 and I6, as the current limit of 10 kgN/ha/yr is necessary to protect the pristine state of the lakes in this area.

Due to the potential for land use intensification in the Waitaki Plains area, it is appropriate to retain the notified leaching limit at 30 kgN/ha/yr. In the long term this will protect water quality.

The Hawea Aquifer is not identified as a nitrogen sensitive zone. Modelling of nitrate indicates that if the leaching limit of 30 kgN/ha/yr were adopted, land use intensification would not degrade water quality in the aquifer.

The notified I-Series of the Maps should be amended to incorporate the above changes.

- **H-series of the Water Plan Maps (notified I-series)**

Reducing the areas of the Ettrick, Roxburgh and the Wakatipu Aquifers on notified Map I4 on notified Maps I4 and I5, and removing the Taieri Aquifer Recharge Zone from notified Map I3 is based on a re-evaluation by ORC's resource science team.

The labels of the notified I-series of the Maps have been amended to refer to the H-series, as the "I" can be easily misread as the numerical value "1".

Additional amendments to the notified maps, such as the inclusion of a new Map H3 for the Wakatipu Basin Aquifer (previously shown on notified Map I5) and minor changes to the layout of the maps and the information displayed in the legend, make the maps easier to use.

The resolution of the maps does not need to be changed. Once they are operative, they will be moved into the Regional Plan: Water Maps, presented in A3 size. GIS data or supporting maps, such as aerial photographs, can be requested from ORC if there is doubt about the exact extent of nitrogen sensitive zones.

- **Future research**

We recommend that ORC should undertake further research into the properties of individual aquifers, their connectivity with other water bodies, and the hydrological characteristic of overlaying soils. Where necessary, aquifer boundaries and relevant nitrogen loading limits will be reviewed and incorporated into the Water Plan through future plan changes.

- **Land uses**

In order for the Water Plan to be effective and ensure good environmental outcomes, all land uses, whether intensive or extensive, need to be subject to the rule framework. Currently not all land uses are equally well provided for in OVERSEER, especially horticulture and cropping. We understand that OVERSEER modules for these sectors are being developed. However, each of these land-uses produces nitrogen leachate, and there

is currently no alternative means of calculating nutrient leaching for horticulture and cropping. Therefore no land uses should be excluded from Rule 12.C.1.3.

- **Use of OVERSEER in a regulatory context**

Given the practical difficulties with scientifically measuring nitrogen leachate, it is appropriate to use a nutrient budget model to calculate nitrogen losses to groundwater. The use of OVERSEER as a management tool within a regulatory context has been endorsed by the Environment Court.

- **Reference to OVERSEER Version 6.0 in Rule 12.C.1.3**

Schedule 1, Part 3 of the RMA allows for the incorporation of documents by reference in plans and proposed plans. The version number for OVERSEER must be stated within the rule to provide certainty about which version is referred to. There will need to be future plan changes to allow future versions of OVERSEER to be incorporated into the Water Plan.

- **The information provision requirement**

The amendments to the wording of the information requirement provide clarification but do not change the meaning of the requirement.

The amendments also give landholders the choice to either submit baseline data, or an OVERSEER input and output report. This will reduce the administrative burden for landholders, and will also reduce the risk of inconsistencies between the OVERSEER reports provided by landholders, and those prepared by ORC staff.

The information requirement applies from 1 May 2014, while compliance with the nitrogen leaching limits is not required until 1 April 2020. Any information required before 1 April 2020 will only be used to monitor trends in land use, to investigate the relationship between land uses and water quality trends, and to assist landholders in their efforts to reduce nitrogen leaching rates from their properties and meet the standards.

After 1 April 2020, received OVERSEER data will be the main instrument for Council to determine compliance with the relevant nitrogen leaching limits. It is at the discretion of ORC to determine compliance with the rule. It is recognised that a suitably qualified person will be required to undertake OVERSEER work within ORC. It is not seen necessary to state this within the rule.

- **Consent options**

See section 3.10 of this report for discussion on nitrogen leaching to groundwater that requires consent.

3.10 Discharge consent options

The notified plan change was largely based on a permitted/prohibited rule framework. The rules in section 12.C only provided limited consent options. Where no consent option was specified, Section 87B(1)(a) RMA would apply, and any application for consent would be treated as an application for a resource consent for a discretionary activity.

We considered the submissions presented, and recommend amending the notified rules to provide clarity on activity status, to ensure different discharges have the appropriate activity status, and to encourage those who need consents to progressively work towards achieving permitted activity standards.

3.10.1 Recommendations

(a) Replace notified Rule 12.C.2.1 with new Rules 12.C.2.1, 12.C.2.2 and 12.C.2.3:

~~12.C.2.1: The discharge of contaminants listed in Schedule 16 to land:~~

~~(i) Where changes to land management or infrastructure have been unsuccessful in meeting the limits in Schedule 16, and the discharge first occurred prior to 31 March 2012; or~~

~~(ii) Where the discharge results from a short-term activity with a short-term adverse effect,~~

~~is a ***restricted discretionary*** activity.~~

...

~~The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.~~

12.C.2.1 The discharge of water or any contaminant:

(i) To water; or

(ii) Onto or into land in circumstances which may result in that contaminant entering water,

is a ***restricted discretionary*** activity, unless the discharge:

(a) Is prohibited by a rule in 12.C.0; or

(b) Is permitted by Rules 12.C.1.1 or 12.C.1.2; or

(c) Will result in flooding, erosion, land instability or property damage; or

(d) Is of water from one catchment to water in another catchment; or

(e) Will change the water level range or hydrological function of any Regionally Significant Wetland; or

(f) Has previously been authorised by resource consent granted under this rule.

The matters to which the Council has restricted the exercise of its

discretion are set out in Rule 12.C.2.4.

The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.

12.C.2.2 The discharge of water or any contaminant:

(i) To water; or

(ii) Onto or into land in circumstances which may result in that contaminant entering water,

from a short-term activity with a short-term effect, is a ***restricted discretionary*** activity, unless the discharge:

(a) Is prohibited by a rule in 12.C.0; or

(b) Is permitted by Rules 12.C.1.1 or 12.C.1.2; or

(c) Will result in flooding, erosion, land instability or property damage; or

(d) Is of water from one catchment to water in another catchment; or

(e) Will change the water level range or hydrological function of any Regionally Significant Wetland.

The matters to which the Council has restricted the exercise of its discretion are set out in Rule 12.C.2.4.

The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.

12.C.2.3 The discharge of nitrogen onto or into land in circumstances which may result in nitrogen entering groundwater is a ***restricted discretionary*** activity, unless the discharge:

(a) Is prohibited by a rule in 12.C.0; or

(b) Is permitted by Rule 12.C.1.3, or

(c) Has previously been authorised by a resource consent granted under this rule;

The matters to which the Council has restricted the exercise of its discretion are set out in Rule 12.C.2.4.

The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.

(b) Replace the list of discretions in notified Rule 12.C.2.1 with an extended new Rule 12.C.2.4 in order to provide greater consent guidance:

~~12.C.2.1: The discharge of contaminants listed in Schedule 16 to land:~~

~~....~~

~~The matters to which the Council will restrict its discretion are:~~

~~(a) The nature, type, volume, frequency, concentration of contaminants in the discharge; and~~

~~(b) In the case of applications made under (i), how discharge limits in Schedule 16 will be achieved within a set timeframe; and~~

~~(c) Any quality management practices to be implemented; and~~

~~(d) Any changes to infrastructure; and~~

~~(e) Addressing any adverse effects on water quality, including cumulative effects; and~~

~~(f) Any effect on any Regionally Significant Wetland or on any regionally significant wetland value; and~~

~~(g) The likelihood of erosion, land instability, sedimentation or property damage resulting from the discharge; and~~

~~(h) Any financial contribution for any Regionally Significant Wetland or on any regionally significant wetland value; and~~

~~(i) The information and monitoring requirements; and~~

~~(j) The duration of the resource consent; and~~

~~(k) The review of conditions of the resource consent.~~

~~The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.~~

12.C.2.4 Restricted discretionary activity discretions

In considering any resource consent in terms of Rules 12.C.2.1 to 12.C.2.3, the Council will restrict the exercise of its discretion to:

(a) The nature, type, volume, frequency of the discharge; and

(b) The concentration and loading of contaminants in the discharge; and

(c) In the case of an application under Rules 12.C.2.1 and 12.C.2.3, the staged timeframe for achieving the permitted activity conditions in Rules 12.C.1.1 or 12.C.1.3; and

(d) In the case of an application under 12.C.2.2, the staged timeframe to address adverse effects on water quality; and

(e) In the case of an application previously consented under Rule 12.C.2.2, compliance with conditions of the previous resource consent; and

(f) Any changes to infrastructure and the staging of implementation of those changes; and

(g) Any adverse effects on water quality, including cumulative effects; and

(h) Any adverse effect of the discharge on any natural or human use values; and

(i) The extent to which the contaminant results from the activities of the applicant: and

(j) Any effect on any Regionally Significant Wetland or on any regionally significant wetland value; and
(k) Any erosion, land instability, sedimentation or property damage resulting from the discharge; and
(l) Any financial contribution for any Regionally Significant Wetland or on any regionally significant wetland value; and
(m) The information and monitoring requirements; and
(n) The duration of the resource consent; and
(o) The review of conditions of the resource consent.

(c) Delete notified Rule 12.C.2.2 and add new Rule 12.C.3.1 in order to change the activity status of discharges of water from one catchment to water in another:

~~12.C.2.2: The discharge of water from one catchment to another catchment is a ***restricted discretionary*** activity.~~

~~The matters to which the Council will restrict its discretion are:~~
~~(a) Concerns of Iwi; and~~
~~(b) The nature, volume, rate and method of the discharge; and~~
~~(c) The location of the discharge; and~~
~~(d) Any introduction of new or pest species; and~~
~~(e) Any contaminants in the discharge; and~~
~~(f) The likelihood of erosion, land instability, sedimentation or property damage resulting from the discharge; and~~
~~(g) Any effect on any Regionally Significant Wetland or on any regionally significant wetland value; and~~
~~(h) Any financial contribution for any Regionally Significant Wetland or on any regionally significant wetland value; and~~
~~(i) The duration of the resource consent; and~~
~~(j) The information and monitoring requirements; and~~
~~(k) The review of conditions of the resource consent.~~

~~The Consent Authority is precluded from giving public notification of an application for a resource consent under this rule.~~

12.C.3.1 The discharge of water from one catchment to water in another catchment is a ***discretionary*** activity.

(d) Add a new catch-all discretionary Rule 12.C.3.2:

12.C.3.2 The discharge of water or any contaminant:
(i) To water;

(ii) Onto or into land in circumstances which may result in that contaminant entering water,

is a ***discretionary*** activity, unless it is:

(a) Prohibited by a rule in 12.C.0; or

(b) Permitted by a rule in 12.C.1; or

(c) Provided for by a Rule 12.C.2.

3.10.2 Reasons

- **Scope of the restricted discretionary activity rules**

Discharges of Schedule 16 contaminants that exceeded the limits, from a short-term activity or an existing activity, were restricted discretionary under notified Rule 12.C.2.1.

Under new restricted discretionary Rules 12.C.2.1, 12.C.2.2 and 12.C.2.3, any discharge that breaches the permitted activity conditions relating to the level of contaminants in the discharge is restricted discretionary. Setting a specific regime for existing uses is inappropriate. The provisions for short-term activities with short-term adverse effects remain.

New Rule 12.C.1.4 provides guidance when considering resource consent applications for activities that fall under the new restricted discretionary activity rules 12.C.2.1, 12.C.2.2 and 12.C.2.3. It is appropriate to amend this to reflect recommended changes to the policies and rules discussed elsewhere in this report:

- See sections 2.3 and 2.4 for further detail regarding policy for consenting.
- See sections 3.5, 3.6, 3.7 for further detail regarding discharges of Schedule 16 contaminants, sediment and water.
- See section 3.9 for further detail regarding discharges of nitrogen to groundwater.

- **Working towards permitted activity standards**

The plan change aims to achieve good quality water in Otago by encouraging progress towards meeting the permitted activity rules.

The consenting rules recognise that for some land users the transition times in the permitted rules may not be long enough to comply with relevant discharge limits or conditions. However practices which detract from achieving good quality water in Otago should not be encouraged through the consenting regime.

The recommended amendments address this by:

1. Restricting the duration of resource consents for discharges that fail to meet the permitted activity conditions to 5 years. See section 2.4 of this report.

2. Making discharges that have previously been authorised by a resource consent under new Rules 12.C.2.1 and 12.C.2.3, discretionary rather than restricted discretionary.

3. Requiring consent applicants to demonstrate how they will work towards achieving compliance with the permitted rules. See section 2.4 of this report on the policy framework.

Note that these amendments do not apply to discharges that result from a short-term activity with short-term adverse effects.

- **Catch all rule 12.C.3.2**

The discretionary consent option in new Rule 12.C.3.2 explicitly provides for all other discharges, so reference back to Section 87 of the RMA is not required.

- **Reviewing existing consents**

Existing discharge permits can continue to operate until they expire. Once the plan change becomes operative and there are rules relating to minimum standards of water quality, these may be reviewed under Section 128(1)(b) RMA.

- **Clarity and consistency**

The new rules in sections 12.C.2 and 12.C.3 have been drafted to achieve consistency with the RMA terminology and with the wording of the wider suite of rules in the amended sections 12.C.0 and 12.C.1.

- **Notification and discharges with wider impact**

See section 5.4 of this report.

3.11 Rules in section 12.B

Section 12.B of the notified plan change retained, largely unchanged, most of the operative provisions from sections 12.4 to 12.13. These covered discharges including human sewage, hazardous substances, and discharges from industrial or trade premises.

We considered the submissions presented at the hearings and recommend amendments, and the reinstatement of certain rules.

3.11.1 Recommendations

(a) Amend the heading to 12.B in order to include explicitly discharges from consented dams in section 12.B:

12.~~7~~B Discharge of ~~pesticides~~ hazardous substances, hazardous

wastes, ~~other~~ specified contaminants, and stormwater; and discharges from industrial ~~and~~ or trade premises and consented dams

(b) Move operative Water Plan Rules 12.12.1.1 and 12.12.1.2 (deleted in notified the plan change) into section 12.B as new Rules 12.B.1.10 and 12.B.1.11 respectively, and amend new Rule 12.B.1.10 in order to provide certainty to consented dam owners:

~~12.12.1.1 The discharge of any contaminant, excluding settled sediment, present in water impounded by a dam, to water in a lake or river, is a ***permitted*** activity, providing:~~

~~(a) The dam is not used for the storage of contaminants; and~~

~~(b) The presence of the contaminant does not result from the damming activity or the activities of the dam operator; and~~

~~(c) The discharge, after reasonable mixing does not give rise to all or any of the following effects:~~

~~(i) The production of any conspicuous oil or grease films, scum or foams, or floatable or suspended materials; or~~

~~(ii) Any conspicuous change in colour or visual clarity; or~~

~~(iii) Any emission of objectionable odour; or~~

~~(iv) The rendering of fresh water unsuitable for consumption by farm animals; or~~

~~(v) Any significant adverse effect on aquatic life; and~~

~~(d) The discharge ceases when an enforcement officer of the Otago Regional Council requires the discharge to cease to provide for clean-up operations and prevent adverse effects on the environment.~~

~~12.12.1.2 Except as provided for by Rule 12.12.1.1, the discharge of a trace amount of any contaminant, originating from within a hydro-electric power structure, into water, is a ***permitted*** activity.~~

~~**Principal reasons for adopting**~~

~~Rule 12.12.1.1 recognises that a dam operator is not always able to control what enters and leaves a dam. Environmental safeguards are contained in Condition (d) and the discharge must cease if requested by an enforcement officer for containment and clean-up operations.~~

~~Rule 12.12.1.2 recognises that minute amounts of contaminants may be discharged from hydro-electric facilities during normal operations without any measurable adverse effect on the environment.~~

12.B.1.10 *[Moved substantially unchanged from 12.12.1.1]* The discharge of any

contaminant, excluding settled sediment, present in water impounded by a dam that is not permitted by Rule 13.2.1.3, to water in a lake or river, is a ***permitted*** activity, providing:

(a) The purpose of the dam is not ~~used~~ for the storage of contaminants; and

(b) The ~~presence of the contaminant does not result from the damming activity or the activities of the~~ dam operator has not caused the contaminant to be discharged into the dam from which it is discharged; and

(c) The discharge, after reasonable mixing does not give rise to all or any of the following effects:

(i) The production of any conspicuous oil or grease films, scum or foams, or floatable or suspended materials; or

(ii) Any conspicuous change in colour or visual clarity; or

(iii) Any emission of objectionable odour; or

(iv) The rendering of fresh water unsuitable for consumption by farm animals; or

(v) Any significant adverse effect on aquatic life; and

(d) The discharge ceases when an enforcement officer of the Otago Regional Council requires the discharge to cease to provide for clean-up operations and prevent adverse effects on the environment.

12.B.1.11 *[Moved unchanged from 12.12.1.2]* Except as provided for by Rule 12.12.1.1, the discharge of a trace amount of any contaminant, originating from within a hydro-electric power structure, into water, is a ***permitted*** activity.

(c) Amend notified Rules 12.B.4.1 and 12.B.4.2, in order to provide consistency in wording and format:

12.B.4.1 ~~Any~~ The discharge of water (excluding stormwater) or any contaminant from an industrial or trade premises to ~~land or to~~ water or to land is a ***discretionary*** activity, unless it ~~complies with~~ is permitted by Rule~~s~~ 12.B.1.6 or 12.B.1.7, ~~is a ***discretionary*** activity~~.

12.B.4.~~2~~.3~~Unless covered by Rule 12.B.4.1, a~~ The discharge ~~that does not comply with Rules 12.B.1.1 to 12.B.1.7~~ of water or any contaminant covered in section 12.B.1 or 12.B.2, to water or onto or into land in circumstances which may result in that contaminant entering water, is a ***discretionary*** activity, unless it is:

(a) Permitted by a rule in 12.B.1; or

(b) Provided for by a rule in 12.B.2, 12.B.3, 12.B.4.1 or 12.B.4.2..

(d) Add new Rule 12.B.4.2 that covers any hazardous substance in section 12.B:

12.B.4.2 The discharge of any hazardous substance to water or onto or into land in circumstances which may result in that substance entering water is a ***discretionary*** activity, unless it is:
(a) Permitted by a rule in 12.B.1; or
(b) Provided for by a rule in 12.B.2 or 12.B.3.

(e) Amend notified Rule 12.B.1.5 in order to clarify the relationship with Rule 12.C.1.3:

12.B.1.5 *[Moved from 12.8.1.5]* The discharge of fertiliser onto production land, in circumstances where it may enter water, is a ***permitted*** activity, providing:
(a) All reasonable measures are taken to minimise any discharge of the fertiliser to water in any water body, drain or water race, or to the coastal marine area; and
(b) The discharge is carried out in accordance with the manufacturer's directions; and
(c) There is no damage to fauna or New Zealand native flora, in or on any Regionally Significant Wetland; and
(d) ~~It meets the provisions of~~ Any discharge of nitrogen also complies with Rule 12.C.1.3.

(f) Adopt the notified Glossary definition of Fertiliser:

(g) Amend notified Rules 12.B.1.1 and 12.B.1.4 in order to update the reference to Growsafe certificates:

12.B.1.1 ~~12.7.1.1~~ The discharge of any herbicide to water for the control of aquatic plants is a ***permitted*** activity, providing:
(a) The herbicide and any associated additive are authorised for aquatic use in New Zealand, and are used in accordance with the authorisation; and
(b) The discharge is carried out in accordance with any manufacturers' directions and is carried out by a person who holds a GROWSAFE Registered Chemical Applicator certificate ~~Growsafe Registered Applicator Certificate of Qualification~~; and
(c) …

12.B.1.4 ~~12.7.1.4~~ Except as provided for by Rule ~~12.7.1.3~~ 12.B.1.3, the aerial discharge of any pesticide onto land in circumstances where it, or any contaminant associated with its breakdown, may enter water, is a ***permitted*** activity, providing:

(a) The pesticide is authorised for use in New Zealand and is used in accordance with the authorisation; and
(b) The discharge is carried out in accordance with any manufacturers' directions, by a person who holds a GROWSAFE Pilots Chemical Rating certificate ~~Growsafe Pilots' Agrichemical Rating Certificate of Qualification~~; and
(c) …

3.11.2 Reasons

- **Consented dams**

It is appropriate to clarify that 12.B covers discharges from consented dams, including hydro-electricity dams. The water in these dams is recognised in the operative Water Plan as being vulnerable to contamination, while the discharge from the dam itself is not considered the source of any contamination.

Rules 12.B.1.10 and 12.B.1.11 are recommended to be reinstated to retain the present status of these discharges. Discharges through permitted activity dams are permitted by Rule 12.C.1.2 if contaminants do not result from the dam operator's activities.

- **Addition of Rule 12.B.4**

The addition of Rule 12.B.4.2 gives legal weight to the fact that section 12.B addresses discharges of hazardous substances. A discretionary activity needs to be provided for any discharge of a hazardous substance not covered by a permitted activity.

- **Consistency in wording**

The provisions in section 12.B.4 have been worded for internal consistency.

- **Fertiliser definition and permitted Rule 12.B.1.5 Condition (d) requirement for nitrogenous fertilisers**

Discharges covered in section 12.B are not subject to the rules in section 12.C. Without the reference to Rule 12.C.1.3 in Condition (d) of Rule 12.B.1.5, people discharging fertiliser that contains nitrogen would not be subject to meeting the nitrogen leaching limits identified within Rule 12.C.1.3.

It is appropriate to retain the definition of Fertiliser as notified. The definition builds on that in the operative plan, but explicitly excludes compost, effluent or seaweed. Fertilisers are classified as a hazardous substance so fall within the scope of the 12.B rules. Compost, effluent and seaweed are not hazardous substances, and discharges are covered by 12.C rules.

The definition as notified is not inconsistent with other definitions, such as the Code of Practice for the Sale of Fertilisers (Fertmark, 2002) and the Code of Practice for Nutrient Management (NZFMRA, 2007), and can be properly understood by all plan users.

- **Reference to Growsafe programmes for certain chemical applications**

The reference to Growsafe certification programmes in Rules 12.B.1.1 and 12.B.1.4 is out-of-date and is updated as a minor change. A reference to AIRCARE^{TM} accreditation is not made as such a change could not be considered minor, and is beyond the scope of this plan change.

- **The need to exempt discharges in urban environments from the 12.C prohibitions**

The provisions in section 12.B address urban stormwater discharges and discharges from reticulated systems. They are not covered by the 12.C provisions.

- **Stormwater discharges**

Rules 12.B.1.8 and 12.B.1.9 relate to stormwater that results from impervious surfaces discharging from a reticulated stormwater system, and to stormwater discharging from any road not connected to a reticulated stormwater system. A plan change is required to make any change to provisions relating to the discharge of stormwater.

- **Odourless or colourless toxins**

The Hazardous Substances and New Organisms Act 1996 and provisions in section 12.B regulate the discharge of odourless and colourless toxins.