In the Environment Court
at Wellington

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under: the Resource Management Act 1991

in the matter of: appeals under clause 14 of the First Schedule to the Resource Management Act 1991 concerning proposed One Plan for the Manawatu-Wanganui Region

between: **Federated Farmers of New Zealand**
(ENV-2010-WLG-000148)

and: **Minister of Conservation**
(ENV-2010-WLG-000150)

and: **Horticulture New Zealand**
(ENV-2010-WLG-000155)

and: **Wellington Fish and Game Council**
(ENV-2010-WLG-000157)

and: **Andrew Day**
(ENV-2010-WLG-000158)

Appellants

and: **Manawatu-Wanganui Regional Council**
Respondent

and: **Fonterra Co-operative Group Limited**
Section 274 party

Statement of evidence in reply of **Gerard Matthew Willis** for Fonterra Co-operative Group Limited

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Dated: 18 April 2012

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STATEMENT OF EVIDENCE IN REPLY OF GERARD MATTHEW WILLIS FOR FONTERRA CO-OPERATIVE GROUP LIMITED

INTRODUCTION

1 My full name is Gerard Matthew Willis and I have the qualifications and experience described in my Evidence in Chief dated 3 April 2012 (*EIC*). I repeat the confirmation given in that statement that I have read and agree to comply with the Code of Conduct for Expert Witnesses.

2 In this statement of evidence I respond to the evidence of **Ms Marr** and **Ms Sweetman** who appear for **Wellington Fish and Game Council** and **Mr Percy** who appears for **Andrew Day.**

3 I have participated in planning expert witness conferencing with Ms Clare Barton, Ms Helen Marr, Ms Lynette Wharfe, Ms Gina Sweetman, Mr Shane Hartley, Mr Chris Hansen and Mr Phillip Percy. The outcome of this conferencing is set out in the Joint Expert Witness Statement to the Environment Court Record of Planner Conferencing on the Topic of Surface Water Quality – Non-Point Source Discharges held on 4th and 5th April 2012 dated April 2012.

4 The fact this statement in reply does not respond to every matter raised in the statements of other parties within my area of expertise, or every witness raising those matters, should not be taken as acceptance of the matters raised. Rather, I rely on my EIC and this reply statement to set out my opinion on what I consider are the key planning issues in relation to the Manawatu-Wanganui Regional Council's (*Council*) Proposed One Plan (*POP*).

SCOPE OF EVIDENCE

5 My evidence will consider the following matters raised in **Ms Marr's** evidence:

5.1 Objective 6-1 and Policy 6-1;

5.2 Targeted catchment (Table 13.1), including a review of evidence on Coastal Rangitikei and the Coastal Lakes;

5.3 The New Zealand Coastal Policy Statement (NZCPS);

5.4 Costs and benefits of the respective policy options; and

5.5 Fonterra's scenario modelling.

6 It will also consider the following matters raised in **Ms Sweetman's** evidence:

6.1 Consistency of POP with the National Policy Statement on Freshwater Management (*NPSFM*);

6.2 Values and objectives; and

6.3 Numerics as limits.

7 My evidence will also address Nitrogen trading as raised by **Mr Percy**.

8 Finally, I will briefly discuss the concept to N use efficiency (raised by Dr Ledgard, for Fonterra).

9 As a result of Planning conferencing and consideration of some of the evidence reviewed in this statement, I propose some relatively minor changes to Chapter 6 and to the Glossary of the POP. I attach updated redline versions of these provisions as **Appendix 1.**

EVIDENCE OF MS MARR FOR WELLINGTON FISH AND GAME AND THE MINISTER OF CONSERVATION

Objective 6.1

10 The record of planner conferencing indicates that I do not agree with the wording proposed for Objective 6-1. The wording agreed by other planners at the conferencing is as follows[1]:

> Surface *water bodies*^ and their *beds*^ are managed in a manner which safeguards their life-supporting capacity and **advances the achievement of the Values** ~~has regard to the Values~~ in Schedule AB.

11 My understanding is that the words in **bold** were agreed early in mediation by all parties in substitution for the more passive "has regard to" proposed by the Hearings Panel. The additional underlined wording was inserted later in mediation at the request of Wellington Fish and Game and the Department of Conservation. Some, but not all, parties agreed to those additional words. I understand that Fonterra did not agree with the additional (underlined) wording at the time of mediation.

12 Clearly, safeguarding the life-supporting capacity is a very relevant part of the purpose of the RMA being included as section 5(2)(b). The same phrase is used in Objective A1 of the NPSFM. My opposition to the additional words is not based on the appropriateness or otherwise of that broad aim. Rather, it is based

[1] The bold text was agreed at mediation. The underlined text was not agreed by all parties at mediation

on the uncertainty created in the objective that would otherwise be clear[2].

13 The values of Schedule AB already include "life-supporting capacity". Thus the objective now proposed by Ms Marr would require the MWRC to safeguard life-supporting capacity and advance the achievement of life-supporting capacity.

14 The Hearings Panel considered the additional words now proposed (which had been in POP as notified) were unnecessary. I agree with the Panel. At paragraph 8.7.10 (page 8-109) of its decision the Hearings Panel stated the following:

> ***Objective 6-1: Water management values***
>
> *We reject submissions seeking the deletion of this objective. It is important that it be retained as the identification of Values underpins the management regime used in the water chapters of the POP. We have, however, deleted the reference to life-supporting capacity as that is but one of the many Values listed in Table 6.2 and Schedule AB*

15 The inclusion of the additional words invites the plan reader to adopt the view that safeguarding the life-supporting capacity is intended to be different from advancing the achievement of the life-supporting value. Otherwise, there would be no logical value in including them both.

16 In my opinion, that creates uncertainty as the difference between the two phrases is not clear to me. (Is one more stringent than the other? Or does giving effect to the later necessarily mean the former is also given effect to?). It seems to me there are at least two possible interpretations:

16.1 The first possible meaning is that Objective 6-1 means that the existing life-supporting capacity is to be safeguarded and where it is poor, management is to occur such that there is advancement towards a state of enhanced life-supporting capacity[3]. Should that interpretation be correct, then I have no difficulty with the wording.

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[2] I also question the value in planning provisions that simply repeat the Act. Additionally, the term is used both in the Act and in the NPS in conjunction with other matters (i.e. the other considerations of section 5 (2) and "sustainably managing the use and development of land in the NPSFM). Thus it is not in my view correct to infer that safeguarding life-supporting capacity is to be necessarily elevated above all other considerations.

[3] I understand that this would be measured by improvement in the periphyton, Macroinvertebrate Community Index (MCI) and dissolved oxygen (DO) indicators, and by the levels of the primary non point source contaminants, to which there is a relationship, being N, P, sediment and faecal matter.

16.2 The second possible interpretation is that safeguarding life-supporting capacity is an aim that applies over and above the desire to advance the achievement of the Schedule AB values. It is, in other words, a higher threshold test. This would mean that the management of water and land uses is to be such that there is an outcome that exceeds "advancement of the achievement".

17 Because there are two different possible interpretations I do not accept the additional wording. Clarity and certainty of meaning is of the utmost importance in plan development in my opinion.

18 It seems clear to me from reading Ms Marr's EIC that she intends the later interpretation. In referring to the "advancing the achievement" and "have regard to" wording options she states[4]:

> *Both of these wording options in my view convey a lower level of consideration of life-supporting capacity than that required by the purpose of the Act and to give effect to the NPSFM.*

19 Similarly, at paragraphs 95 and 99 of her EIC, Ms Marr describes how she sees safeguarding life-supporting capacity and improving water quality towards the Schedule D numerics relevant to life-supporting capacity to be two separate and different policy tests.

20 My concerns with the approach of ensuring higher consideration to one of the values (as implied by Ms Marr at paragraph 74 of her EIC) are:

20.1 As noted earlier, the wording invites confusion and debate that will be unproductive as the POP is implemented. It is not clear what this higher consideration would be.

20.2 If the approach were taken the "advance the achievement" imperative (supposedly a lower test) would only relate to the values/numerics that are unrelated to life-supporting capacity (the life-supporting capacity-related numerics[5] would have the higher test).

20.3 Notwithstanding Ms Marr's assertion, it is not clear to me that "safeguarding" is in fact a higher test than "advancing the achievement". In particular, it is not clear whether the term refers to *existing* or *potential* life-supporting capacity. I accept that safeguarding the <u>potential</u> life-supporting capacity

[4] Paragraph 74, Page 22 of EIC of Ms Marr.

[5] As previously noted these would include the periphyton, MCI and DO numerics and non point source contaminants.

may be a higher test but, in the absence of that qualification (i.e reference to "potential", it is unclear).

20.4 If safeguarding is a higher test, it may mean that the numerics that relate to life-supporting capacity need to be achieved not just progressed towards. Yet the POP will not achieve the nitrogen numerics (at least) with the policies and rules proposed. That is very clear from the evidence of Dr Roygard et al[6]. Therefore, in accepting those words the POP would be setting an objective that we know in advance will not be met.

20.5 There will be inconsistency with other objectives of Chapter 6. Objective 6-3, for example refers to <u>existing</u> life-supporting capacity. That immediately raises the issue of whether that is different from the life-supporting capacity of Objective 6-1. Similarly, Objective 6-4 refers to "<u>sustains</u> their life-supporting capacity". It is not clear whether "sustains" and "safeguards" mean the same thing.

21 One option for resolving this matter would be to insert the word "existing" such that the Objective refers to <u>existing</u> life-supporting capacity. That would clearly support the first interpretation outlined earlier and make the objective consistent with Objective 6-3. I do accept though that would be a benefit in ensuring that, at least insofar as life-supporting capacity is concerned, there is an expectation of significant and concerted effort to pursue the values (and numerics) i.e. that "just a little bit" of progress in the right direction will not always be sufficient if greater progress is possible all other planning matters considered.

22 In my opinion, one way to promote that approach would be to add to the policy wording as follows (additional suggested wording <u>underlined</u>):

> Surface *water bodies*^ and their *beds*^ are managed in a manner which advances the achievement of the Values in Schedule AB <u>with particular regard to safeguarding life-supporting capacity</u>.

23 In my opinion, that restores the advancement of the achievement of Schedule AB values as the dominant consideration but acknowledges the need to do so in a way and at a rate that safeguards life-supporting capacity consistent with the Act and the NPSFM.

[6] I refer here to the scenario modelling of Dr Roygard which shows (Table 40, TEB 5239) that the modelled SIN load under all scenarios remains well above target load (target load being the load calculated by Dr Roygard as necessary to deliver the in stream SIN concentration numeric of Schedule D even at 2030).

Policy 6-1

24 Ms Marr supported a change to Policy 6-1 that is consistent with the change proposed to Objective 6-1. For the reasons discussed above I do not support that change and suggest the same solution as proposed in respect of Objective 6-1. This would read as follows (suggested additional text underlined):

> The *rivers*^ and *lakes*^ and their *beds*^ must be managed in a manner which advances the achievement of the Schedule AB Values <u>with particular regard to safeguarding life supporting capacity</u>, when decisions are made on avoiding, remedying or mitigating the adverse *effects*^ of activities or in relation to any other function exercised by the Regional Council or Territorial Authorities. The individual Values and their associated management objectives are set out in the Schedule AB Surface Water Management Values Key and repeated in Table 6.2.

Policy 6-3

25 The Record of the Planner Conferencing on the Topic of Surface Water Quality – Non-Point Source Discharges, notes that all parties agreed to changes to Policy 6-3. The changes made in Planner conferencing overcome the difficulties I had with the Policy as recorded in my EIC. In brief the expectation that the Schedule D numerics would be met has been replaced by an obligation to manage water quality so that there is progress towards Schedule D numerics and Schedule AB Values.

26 For completeness, I include the agreed wording in Appendix 1.

"Numerics" vs "limits" and "targets"

27 Ms Marr discusses the issue of terminology at paragraph 86 of her EIC. I respond to issues raised in relation to Ms Sweetman's evidence as she deals with terminology in detail.

Targeted catchments

28 In paragraph 110 of her EIC, Ms Marr concludes that four Water Management Zone (WMZ)/Sub-zones, in addition to those already targeted by Table 13.1, need to be "managed" in order to achieve the policies and objectives of the RPS. By this I understand her to mean that there are four additional Zones/Sub-zones with degraded water quality and that the major contributor to elevated levels of pollutants in these Zones/Sub-zones are non-point sources.

29 The four additional Zones/Sub-zones are:

29.1 Coastal Rangitikei Rang_4

29.2 Hokio Hoki_1b

29.3 Kaitoke Lakes West_4

29.4 Southern Whanganui Lakes West_5.

30 I understand that the water quality expert conferencing agreed that all four of these Zones/Sub-zones should be subject to "management" given the state of water. (I do note however that experts concluded that water quality of Coastal Rangitikei at McKelvies "*sits around the level of the Schedule D numerics*" but that the Schedule D numerics were not met in tributaries. There was agreement that the Coastal Rangitikei tributaries need to be managed but not agreement that the main stem required management action).

31 Ms Marr goes on to recommend that the management should be by way of inclusion in Table 13-1 meaning that activities caught under Rule 13.1 would be regulated in those Zones/Sub-zones to control non point source discharges.

32 A key planning issue highlighted by that recommendation is that there is currently no policy in POP that specifically guides or determines which Zones/Sub-zones should be targeted (by way of in Table 13.1) for management action using the regulatory tools of Rule 13.1[7].

33 In the absence of such a policy, I have taken account of how the Council made that determination in practice. In that regard, I understand the key considerations applied by Dr Roygard[8] are the state of water quality (in relation to the numerics of Schedule D) and whether non point source was a major contributor. Ms Marr has continued that approach in her analysis. I agree that those are highly relevant considerations.

34 However, also relevant to whether a zone should be included in Table 13.1 will be the contribution point source discharges make to degraded water quality. Dr Roygard also applied that criterion as noted in paragraph 311 of his Section 42A Report.

35 In that regard I note paragraph 106 of Ms Marr's EIC where she states (in relation to the catchments sought to be targeted by WFGC and MOC) that:

> *I am not aware of any evidence that the major cause of these breaches of the limits I have identified in a-d[9] above is caused by point source discharges.*

[7] It not a simple matter of applying policies 6-3, 6-4 and 6-5 since there are catchment that do not meet Schedule D numerics that are currently not included in Table 13.1.

[8] Paragraph 310, Dr Roygard's Section 42A Report.

[9] These include N (SIN), P (DRP), faecal contamination (*E.Coli*), sediment, periphyton, MCI and DO.

Coastal Rangitikei

36 In my opinion there is evidence that at least in the case of Coastal Rangitikei (Rang_4) point sources are a significant issue. On that point I note the EIC (paragraph 459, Section 42A Report) of Ms McArthur (relied on by the Hearings Panel) which stated:

> *The Coastal Rangitikei Water Management Zone is subject to a number of significant point source discharges in the main stem and tributaries (see also Table 16 in previous sections on point source contributions to water quality). These have an influence on the SIN (Figure 43, DRP (Figure 44) and E.Coli (Figure 45) in the tributaries themselves and on the nitrogen loads to the wider catchment (Map 30).*

37 Table 16 of Ms McArthur's evidence referred to in the above quote is entitled *"Point source discharges that contribute <u>significantly</u>* [emphasis added] *to contamination of surface water either locally or on a sub-zone wide basis in Horizons' Region. Note: other discharges (e.g. Sanson and Halcombe STP) also have localised effects but lack the data to enable a complete assessment at the Water Management Sub-zone level".*

38 Table 16 of Ms McArthur's EIC includes Rang_4 and shows that the Riverlands (a freezing works near Bulls) point source discharge as having a zone wide impact on N, P and *E.coli*. The footnote also records that *"Bulls STP, Halcombe STP, Sanson STP and Ohakea STP also contribute in this sub-zone. Riverlands makes the most significant contribution".*

39 Ms Marr bases her conclusion on Table 6 (TEB 5054) of Roygard et al, which shows that Rangitikei at McKelvies (the only site they report in the Rang_4 zone and a main stem site) has a measured SIN load of 573.06 T/yr (against a target load of 248.3 T/yr) and a non point source SIN contribution of 543.07 T/yr. On the surface, this later evidence would seem inconsistent with the earlier evidence of Ms McArthur which I have quoted above and would support the view that Coastal Rangitikei should be included as a targeted catchment.

40 However, in my opinion, the evidence of Dr Ausseil (which Ms Marr does not point out), seems to be more relevant. Table 7 of Dr Ausseil's EIC considers SIN and DRP as concentrations (g/m^3) at 13 sites in the Rang_4 Sub-zone. It provides more fine-grained information of water quality within the zone than the one site relied on by Ms Marr.

41 I see two issues arising from Dr Ausseil's Table 7.

42 First, it shows that the main stem of the Rangitikei is generally at or below the SIN and DRP target concentrations of Schedule D but that

the tributaries (e.g. Rangitawa, Porewa, Tutaenui streams – that last two being sub-zones) have water quality below the Schedule D numerics.

43 This contrasts with Table 6 of Dr Roygard et al referred to earlier. That Table, which Ms Marr draws attention to, shows that the measured load far exceeds the target load. The Schedule D numerics are, of course, expressed as concentrations (g/m^3) hence, in the absence of technical advice to the contrary, I rely upon Dr Ausseil's Table 7. I note again that the Record of Technical Conferencing on Nitrogen Limits and Water Quality confirmed that all parties agreed that the Rangitikei at McKelvies sits around the Schedule D numerics as per Dr Ausseil's EIC[10].

44 The second issue is why the water quality of the tributaries is below that of the Schedule D numerics when the main stem is not. The evidence on this seems incomplete. I do note though Dr Ausseil's evidence that these tributaries make only a small contribution to the overall Rangitikei River flow (with the mean flow only increasing 7% between Onepuhi and McKelvies). I understand that means that, although the tributaries contain high contaminant levels, the flow relative to the main stem is insufficient to push the water quality of the main stem above the Schedule D numerics.

45 More importantly, I also note Ms McArthur's EIC paragraph 460 where she notes[11]:

> *The Tutaenui, Porewa, Pikatu and Rangitawa streams are all subject to point sources from Marton, Hunterville, Sanson and Halcombe STP (sewage treatment plant) discharges respectively.*

46 I also note the list of measuring sites in Dr Ausseil's Table 7 indicates that the degraded result in the tributaries were all recorded at STP monitoring sites (Hunterville STP, Halcombe STP, Bulls STP, Riverlands STP, Martin STP, and Sanson STP respectively).

47 Dr Death reviews (EIC, from page 29) MCI and periphyton monitoring data for Coastal Rangitikei (and tributaries). He makes some observations about the impact of point source discharges from STPs. In commenting on MCI levels, he notes that while sewage from Taihape and Bulls do not indicate any "dramatic effects" on water quality of the main stem or tributaries, sewage from

[10] Ms McArthur also concludes that the mean concentration [or SIN] is generally within the proposed standards until the river reach between the McKelvies and Scott's Ferry Sites.

[11] Table 15 of Ms McArthur's evidence also shows that the Hunterville, Halcombe and Marton STP discharges do not meet the SIN or DRP standards at Mean Annual Low Flow (MALF)

Hunterville (via the Porewa Stream) and Marton (via the Tutaenui Stream) do seem to result in a decline in water quality. That is illustrated by his Figure 10.

48 Dr Death also reviews periphyton monitoring data. As I understand it, the evidence of elevated periphyton at Bulls (on the main stem) cannot be explained by the Bulls STP discharge (as the elevated periphyton occurs up-stream of that discharge). However, overall periphyton levels remain below the Schedule D numerics on the main stem and generally on the tributaries (with the exception of the Porewa stream[12]). I do note though, from Figure 10, that there is an increase in Chlorophyll *a* (the periphyton indicator) after STP discharges on both the Porewa and Tutaenui streams (albeit the Tutaenui Stream remains well below the Schedule D numeric).

49 I take it from Dr Death's EIC that both STP and non point source discharges are contributing to reduced MCI levels and increased periphyton levels in the Coastal Rangitikei tributaries. I do note that he suggests at paragraph 85 that ecological health (MCI and periphyton) in the Coastal Rangitikei tributaries is affected more by non-point source influences than by sewage discharges that are monitored. It is not, however, clear to me how he reached that conclusion on the evidence presented.

50 It is beyond my expertise to draw any conclusions from that review of technical evidence. In my opinion the evidence is incomplete in that there appears to be no detailed analysis of relative contributing sources of N and P to Coastal Rangitikei tributaries. The evidence that does exist suggests to me that Ms Marr's inference (at paragraph 106 of her EIC) that water quality problems in the Coastal Rangitikei Zone (being problems experienced in the tributaries only) are attributable to non point sources may be unsound.

51 Ms McArthur does conclude her analysis of Coastal Rangitikei[13] by stating "localised impacts from both point and non point source are significant in the tributaries". But I am not aware of a definitive assessment of the relative point and non point source contributions in these tributaries.

52 Perhaps of most relevance is Ms McArthur's statement that:

> *The implementation of the FARM strategy* [i.e. Rule 13-1] *in the Coastal Rangitikei zone is largely driven by the need to ensure land use intensification does not degrade the river any further. For information on the potential for expansion of*

[12] See Figure 10.

[13] Paragraph 466, McArthur Section 42A report.

intensive land uses in the Coastal Rangitikei zone refer to the evidence of Dr Roygard.

53 That is interesting as the rule controlling expansion of dairy farming (Rule 13-1B) applies across all land in the Region including Coastal Rangitikei. I would have thought that by controlling new dairy conversions in the Coastal Rangitikei, Rule 13-1B would address the key issue raised by Ms McArthur [14].

Relative non point source contributions

54 I note that, in addition to the criteria discussed above (water quality and the relative contributions of point and non point sources) the Hearings Panel also applied the criterion of whether inclusion in Table 13.1 would effectively address the issue. That is, the Panel tested whether the activities regulated by Rule 13-1 are present in the Sub-zone in sufficient quantity such that a material difference in outcome in the sub-zone from their regulation could be expected. I agree that, from a section 32 perspective, that is a relevant consideration.

55 In that respect, I note Ms Marr's statement at paragraph 111 of her EIC (when referring to which land uses contribute to water quality values not being met):

"In summary, the evidence shows that intensive land uses are the predominant source of non-point source pollution."

56 In my opinion, the evidence does not support that statement in respect of N being the key contaminant controlled by Rule 13.1. In my opinion, the information on this subject is incomplete but some informative analysis is provided by Roygard and Clarke (TEB pages 5151- 5243). Table 39 (page 5234) of that evidence shows analysis of projected contributions of SIN in the Manawatu, Waikawa and Rangitikei catchments. At all 15 sites, non-intensive land uses are the predominant source of non-point source pollution. In fact, the highest proportion of non point source load by intensive land uses is 37% at McKelvies (Rangitikei catchment). In the Manawatu catchment, the contribution of sheep and beef is more than double that of dairy.

57 That data does show that 30% of the SIN load at McKelvies is from dairy with another 7% from horticulture. However as noted above, the water quality issues with the Rangitikei are on the tributaries and the modelling work of Roygard and Clarke does not go to that level of detail.

[14] I do accept that the 95 existing farms (as reported by McArthur EIC, paragraph 467) may be able to intensify by increasing stocking rates over time. However, I understand Ms McAthur's comment to suggest that it is the expansion of dairying (i.e new and additional farms) that poses the greater risk.

58 For those reasons, I do not agree with Ms Marr that Coastal Rangitikei ought to be a targeted WMZ specified in Table 13.1 and agree instead with Ms Barton that the evidence does not exist to justify that WMZ's inclusion in Table 13-1.

The Lakes Zones

59 The other three Zones/Sub-zones Ms Marr proposes be included in Table 13.1 are all lake catchments (Hokio Hoki_1b, Kaitoke Lakes West_4, Whanganui Lakes West_5).

60 Again, the question is whether the "management" that was agreed by the Water Quality experts to be necessary should be by way of Rule 13-1 or by some other method.

61 Unfortunately there seems to be less evidence in relation to the Lakes than for the river catchments. While experts agree on the degraded state of the lakes, there seems to me to be less clarity about the causes and the solutions.

62 I note from the evidence of Ms McArthur for example[15], that the non-point sources (or relative proportion of different potential sources) contributing to nutrient enrichment of Lake Horowhenua is not known with any certainty[16]. Clearly, lakes present greater complexity.

63 I also understand from the evidence of Ms McArthur that in the Horowhenua catchment there are only around ten dairy farms covering about 18% of the catchment. The contribution of these farms to N in the lake is not known. The catchment does contain the town of Levin, considerable horticulture or cropping and over half is farmed for sheep and beef. I also understand there is also the possibility of ground water inflows (meaning nutrients could be entering from outside the catchment[17]). Nutrients are also recycled from existing nutrient enriched sediments (I note this is discussed by Mr Gibbs in his EIC).

64 I note here also Dr Kelly's evidence where he lists the necessary measures to improve Lake Horowhenua as:

64.1 Catchment nutrient management (I note he does not single out any one use);

64.2 Sediment and riparian management;

[15] See Paragraph 402, McArthur EIC.

[16] Ms McArthur notes, page 205 of her Section 42A report, that *Escherichia coli* with the Lake is generally within safe swimming levels, indicating that contamination may not be sourced from animal-based intensive land uses.

[17] As reported in the Section 42A report of Ms McArthur paragraph 403.

64.3 Exotic species management;

64.4 In-lake intervention measures; and

64.5 Monitoring.

65 On that basis, in my opinion, including Lake Horowhenua in Table 13.1 (especially if dairy is the only land use controlled) would not represent a comprehensive or integrated response and would be unlikely to be effective.

66 Limiting nutrient loss from dairying, through regulation, may well be *part of* a solution. That is, it may be necessary but insufficient in itself. However, to include Lake Horowhenua in Table 13.1 now, in isolation from a broader response (based on better information) gives rise to risks of imposing cost for little gain. In addition, significant inequities may arise between land users in the catchment.

67 For those reasons, I recommend against the inclusion of Lake Horowhenua (Hokio Hoki_1b).

68 The situation applying to Horowhenua (i.e. low existing dairy[18], complex processes and low understanding of non point sources of nutrient etc) is broadly similar in the Kaitoki lakes and Whanganui Lakes. For that reason, I do not support their inclusion in Table 13.1 at this time.

69 In saying that, I am not suggesting that dairy (and other existing land uses) might not be appropriately regulated in the future in these catchments as part of a broader strategy.

New Zealand Coastal Policy Statement

70 Ms Marr discusses the New Zealand Coastal Policy Statement 2010 (NZCPS) from paragraph 36 of her EIC. I agree that is a relevant matter to consider – particularly in the context of the coastal lakes.

71 Policy 21 of the NZCPS (quoted in full by Ms Marr) is perhaps the key NZCPS provision in relation to Chapters 6 and 13 of POP.

72 While I agree with Ms Marr on those two points, I do not agree that the inclusion of the coastal lakes in Table 13.1 is a necessary or appropriate response to give effect to the NZCPS.

73 In my opinion, Policy 21 does not over-ride the duty under section 32 to consider effectiveness and efficiency (having regard to costs

[18] For example, Ms McArthur notes (page 226) that only 5% of the catchment is in intensive use and there is only one dairy discharge consent (suggesting just one farm).

and benefits). As noted above, there seems to be considerable uncertainty about the sources of contamination and impacts on lake water quality. Including these Lakes within Table 13.1 is, in my opinion, not the only way to give effect to Policy 21 of the NZCPS and may not be an appropriate means given the uncertainties involved (and likely limited effect given the numbers of activities regulated).

74 I note Policy 3 of the NZCPS and its focus on taking a precautionary approach, when the effects of an activity are uncertain but potentially significantly adverse. In my opinion, the regulation of all new dairy farming in the catchments of these lakes is an appropriate response in that regard. Of course there are many other provisions within the POP that control other forms of point and non-point source discharges.

75 In addition, I do note the Ms Barton has proposed in Policy 6-7B a focus on monitoring and assessment of the coastal lakes. New methods 6-6A and 6-6B are also proposed specifically targeting the coastal lakes. In my opinion, those collective actions (regulation of existing dairying, commitment to monitoring, and non regulatory methods focused on water quality enhancement in the coastal lakes) together with the identification of the Coastal Lakes Sub Zones in Schedule AA of the POP, satisfy the requirements of Policy 21 (a)-(c).

76 Policy 21 (d) arguably could require the stock exclusion to extend to the coastal lakes, although I note Mr Newland's evidence that Fonterra now requires (as a contractual matter) stock exclusion from all lakes.

77 Policy 21(e) relates to engaging with tangata whenua on the identification of areas of "coastal water" where they have particular interests. I am not aware of the nature of engagement with tangata whenua undertaken as part of the POP development process but I do note that Table 6-2 does contains two values of specific relevance to Maori (Mauri and Sites of Significance - Cultural).

78 On that basis, I believe Chapters 6 and 13 of POP do give broad effect to the NZCPS.

Costs and benefits

79 Ms Marr discusses the issues of on-farm costs and ability to comply in paragraph 138 of her EIC. She quotes the suggestion of Alison Dewes that *"nitrogen leaching reductions of up to 30%-40% are possible while still maintaining or improving farm profitability".*

80 In my opinion, Alison Dewes' evidence when read in the round was significantly more cautious than indicated by Ms Marr. For example, at paragraph 7.18, Alison Dewes states:

> *I have read the evidence of Mr Smeaton[19] and Dr Ledgard (S 42A) and agree that around 10% of a reduction in N leaching can be made without any significant effects on profitability in most cases. I concur with Mr Smeaton also, in pts 48-50 of his S42A evidence, that the application of the findings seen in the Waikato and Rotorua districts suggests that it may be possible to achieve an average reduction in leaching of 10-15% N loss from farms across the region over 10 years without significant impact on profitability. In my own experience in the Waikato Region where we are monitoring the annual profitability of farms, this also applies in most cases; however I would add that the degree of the implementation of change is dependent on the farmer's capability, the support that he/she is provided with, and the necessity to make change.*

81 Alison Dewes does go on to refer to situations where more than 10-15% may be possible (though not in every case). In my reading the key relevant paragraph of Alison Dewes' evidence is paragraph 9.28 that sums up a review of what is possible. That paragraph states in full:

> *The above cases and the associated anecdotal evidence illustrates that farm systems can make a transition to improved production, in many cases improved profit (if all systems are managed well and efficiently), with resultant reductions in nitrogen leaching of 10-40%. As mentioned previously, this needs to be considered on a case-by-case approach.*

82 That view aligns with the evidence of Dr Manderson and Mr Taylor who both looked at on farm achievability and cost issues and noted variability in what was possible to achieve at moderate cost (as I discussed in my EIC). It is also consistent with the evidence of Dr Ledgard.

Cost benefit analysis

83 There appears to be some debate amongst economists (and other expert witnesses) about whether the costs associated with intervening to address some non point sources of pollution are accurately estimated by those economists who have attempted such estimation (being Messrs Neilds and Rhodes and Dr Marsh. (See, for example, the evidence of Dr Ledgard and Mr Ballingall[20]). Similarly, there also seems to be a lack of agreement on the magnitude of the benefit of enhanced water quality. (See, for

[19] Mr Smeaton gave evidence for Fonterra at the first instance hearing.

[20] This indicates that some of the costs might have been under-estimated by Dr Marsh and the benefits overstated. However, I note that the economists' conferencing did not reach a consensus on this matter.

example, the rebuttal evidence of Mr Ballingall). Mr Ballingall's EIC questions whether sufficient economic information is available to make firm conclusions about the economic impact (see paragraph 118 of his EIC) but no economist, including Mr Ballingall, challenges the proposition that some form of planning response is warranted on a cost benefit basis (i.e. the benefit of planning intervention to enhance water quality where it is currently degraded is likely to outweigh the cost). That much is clear to me from the evidence (putting aside the questions of what should be regarded as degraded and how much enhancement should be delivered).

84 However in my opinion, the value of the benefit has not been defined at a fine enough grain for it to be helpful in evaluating the relative appropriateness of the policy options currently before the Court. Indeed the approach Dr Marsh used to identify a value of water quality is based around a very broad question about what a household would need to be paid (the "willingness to pay" theory) to allow water quality of a river to move from "not satisfactory" to "poor". As I understand it, none of the expert planners' policy options in this case are proposing such an outcome. The three policy options currently being considered (Ms Barton's, Ms Marr's and my own) all aim to improve water quality (the planning debate is more a question of how much and how fast).

85 Ms Marr also acknowledges this problem of insufficient detailed cost benefit information at paragraph 152 of her EIC when she observes that "*economic cost benefit analysis needs to be done at a broader level simply because the data and modelling is not available for more complex analysis*".

86 For that reason, Ms Marr relies on an analysis of the relative benefits of the various policy options. I agree with that approach in principle. Ms Marr's analysis of the relative costs and benefits was not able to consider my proposal, as it would not have been known to her when she conducted her analysis. Similarly, whilst various scenarios (representing different policy options) were modelled by Dr Roygard and Ms Clarke and, separately, by Dr Ausseil, my proposal was not modelled. Therefore, the information was not available to Ms Marr for her relative cost benefit analysis.

87 Those points acknowledged, I do not agree with the relative cost benefit analysis undertaken by Ms Marr in Table 1 (page 44) of her EIC. I do appreciate the lack of information available to Ms Marr at the time but I do not accept that it is appropriate for her to have ranked the proposals on the basis of benefits, benefit/cost ratio and effectiveness when she did not have a clear understanding of my proposal and no scenario modelling on which to base her assessment. It is not clear to me what objective information led Ms Marr to assess a ranking of my proposal (which she refers to as the

"Fonterra" regime) third behind her own (the "Wellington Fish and Game" – WFG) proposal and Ms Barton's ("the Council's") proposal.

88 In my opinion, there is significant difficulty in assessing the relative costs of the various options. I note that the economists' conferencing statement agreed that the Council's and Fonterra's proposal will cost farmers less than the original but that no work has been done to quantify it (or to assess the relative difference between my proposal and that proposed by Ms Barton for the Council) or the magnitude of difference between the regimes proposed by me, Ms Barton and Ms Marr.

89 I note also Mr Ballingall's rebuttal evidence makes similar observations at paragraphs 95 and 96. His paragraph 96 states:

> *If the benefit/cost ratio cannot be calculated for two out of the four options, it is inappropriate to say that any of the options is preferable to all of the others. In other words, there is no justification for Ms Marr's ranking of benefit/cost ratios.*

90 The one aspect of the cost benefit analysis that we can get a much better assessment of is the relative benefit of proposals. That is done by considering scenario modelling of likely SIN load.

Dr Ledgard's scenario modelling

91 Dr Stewart Ledgard has now modelled my proposed regime. In some respects, the modelling is more difficult, as it requires assumptions about farmer behaviour. Nevertheless, I understand that Dr Ledgard has tested a range of scenarios and had input from Dr Parminter on likelihood. The results are therefore informative for comparative purposes in my opinion.

92 The first point to note is that Dr Ledgard has modelled the effect over a 10-year time horizon (as opposed to the 20 year horizon applied by Dr Roygard and, separately, Dr Ausseil). I consider that the most relevant timeframe in which to consider results for a number of reasons.

92.1 It is more consistent with the anticipated regional planning horizon before review is due). In that regard, the POP already includes a commitment to review the effectiveness of the regime in five year's time. .

92.2 Related to that, I understand the field of N leaching management, science and regulation is moving fast. For example, within a 20 year period it is reasonable to expect a range of changes to the national regulatory and policy environment, N leaching mitigation technologies, commitment and resources being deployed by industry, agricultural

practices and trends, volume and availability of water quality information etc. That means that the further out in time the scenarios are modelled, the less reliable the results are likely to be.

93 For all those reasons it seems to me highly unlikely that there will be a lapse of 20 years before the approach to N leaching management is re-examined in the Manawatu Region.

94 Dr Ledgard sets out his modelling results in paragraph 8 of his statement in reply (and provides further details in Appendix B). In brief, it shows results of several scenarios with the most likely being a scenario where:

94.1 The top 25% of dairy farms (in current N leaching terms) adopt Tier 1 mitigation measures (with some exceptions as provided for in my proposed rule); and

94.2 Change to the best performing 75% of dairy farms broken down as follows:

(a) One half (of the 75%) maintaining the same N leaching;

(b) One quarter (of the 75%) adopting Tier 1 mitigations and *reducing* N leaching; and

(c) One quarter (of the 75%) *increasing* N leaching by 10%.

95 Dr Ledgard reports that this scenario would deliver a modelled average reduction of 1.6 kg N/ha/yr (i.e. the average dairy farm would reduce from 22.9 to 20.6 kg N/ha/yr over the 10-year period from existing farms). That represents over 10% reduction in loss from existing farms.

96 When 5.5% growth in dairy conversions[21] is added to the model, there is still a reduction in the average N leaching of 1.6 kg N/ha/yr. That represents a 7% overall reduction in N leaching over ten years[22].

[21] Equivalent to the 11% growth over 20 years applied by Dr Roygard in his modelling.

[22] I note that Dr Ledgard also modelled a 20 year scenario. That shows less reduction due to the greater number of conversions that might be expected over the additional 10 years. While there are reductions likely over this time frame, these are more modest (the mostly likely scenario shows an average 0.9 kg N/ha/year reduction). That may signal a need to consider imposing further planning controls to either limit conversions and/or lower N leaching entitlement in around 10 years time. The POP's commitment to review progress (Policy 6-7A (c)) provides for that reassessment in ample time in my opinion

97 In his rebuttal evidence, Dr Scarsbrook has translated this on-farm reduction into predicted SIN loads in the rivers to enable comparison with the modelling of Dr Roygard and Dr Ausseil.

98 Dr Scarsbrook's rebuttal evidence Table 2 allows comparison with Dr Roygard's Table 41 (TEB page 5240) and, in respect of the Manawatu at Hopelands and Mangatainoka at SH 2, with Dr Ausseil's Table 18 (Ausseil, EIC). For ease of reference, I have combined Dr Scarsbrook's Table 2 with those data from Dr Roygard's Table 41 that reflect what I understand to be the proposals of Ms Barton and Ms Marr. I also include the two projections of Dr Ausseil. I set this out in Table 1 below.

Table 1 – Modelled percentage change in SIN load from current state under different planning options (positive numbers indicate an improvement i.e. a decrease in SIN load)

	Willis Proposal -Year 10 (Scarsbrook's Table 2, Scenario 2)	**Barton Proposal -Year 20** (Dr Roygard's Table 41, Scenario 4)	**Marr Proposal -Year20** (Dr Roygard's Table 41, Scenario 6	**Marr proposal -Year 20** (Dr Ausseil, Table 19, Scenario B4)
Manawatu Catchment				
Manawatu at Weber Rd	9	4	9	
Manawatu at Hopelands	9	4	12	13
Tiraumea at Ngaturi	5	0	0	
Mangatainoka at Larsons	0	3	8	
Makahaki at Hamua	10	6	15	
Mangatainoka at SH 2	11	5	12	16
Mangahao at Ballance	6	0	0	
Manawatu at Upper Gorge	8	3	9	
Waikawa Catchment				
Manakau at SH1	0	0	0	
Waikawa at North Mankau	-25	-16	-4	
Waikawa at Huritini	-2	-13	-2	

99 The first point to note is that my proposal would, assuming Dr Ledgard's assumptions are reasonable, advance the achievement of the of Schedule D numerics and correspondingly the Schedule AB values. In other words, in section 32 terms, it would be effective.

100 The second issue to be addressed is how effective it would be relative to other options.

101 The scenarios presented in Table 1 do differ in some respects, most significantly in the timeframe used. Care must therefore be taken in making comparisons.

102 Table 1 shows, however, that my proposal would be more effective at 10 years than Ms Barton's would be at 20 years. That will be partly because Ms Barton's scenario allows for a further 10 years'

(5.5%) dairy growth. The Table also shows that Ms Marr's proposal may generate more SIN load reduction (at some sites) over 20 years than my proposal would over 10 years. That reflects, in part, that Ms Marr's approach relies on a "sinking lid" approach to per hectare N leaching entitlement over the full 20-year period. Dr Ausseil's scenario (which includes control of cropping) would yield a greater benefit at the two sites modelled but again, that is a 20-year projection.

103 It would have been useful to compare the various scenarios on a standard 10-year basis. However that has not been possible with the evidence available (acknowledging that other parties have not had an opportunity to review Dr Ledgard's modelling).

104 Nevertheless, the scenario modelling does not indicate huge differences between the effectiveness of the scenarios over a 10-year period. I find it difficult, on the basis of the information available, to conclude that one option would necessarily be more effective than the other. However, I do not agree that there is evidence that my proposal will be less effective over 10 years than the others being considered.

EVIDENCE OF MS SWEETMAN FOR WELLINGTON FISH AND GAME AND THE MINISTER OF CONSERVATION

National Policy Statement on Freshwater Management

105 Ms Sweetman sets out a comprehensive analysis of the POP against the NPSFM.

106 The NPSFM was gazetted on 12 May 2011 and came into effect on 1 July 2011. That was well after POP was notified, hearings were held, a decision issued and appeals lodged. Despite those circumstances, I agree with Ms Sweetman that it is appropriate for the POP to reflect the direction of the NPSFM (i.e. within the scope of appeals).

107 However, I do not agree with her assessment that the Notified Version of POP (with amendments as per Ms Sweetman's and Ms Marr's evidence) will give better effect to the NPSFM than any of the other versions of the POP. More fundamentally I consider Ms Sweetman has overlooked some important planning considerations in claiming consistency in the approach of POP with that required by the NPSFM.

108 For ease of reference I comment on each of Ms Sweetman's main points as set out in paragraphs 16 and 17 of her EIC.

109 Ms Sweetman states:

Schedule AB values in the POP describe the intended environmental outcomes for each Water Management Zone and this is consistent with Policy A1a) of the NPSFM.

110 At one level, I agree that the values of Schedule AB (and associated management objectives) describe the intended environmental outcomes. However, I do not consider that these should be described as "freshwater objectives" for the purpose of the NPSFM in view of two issues:

110.1 If the values of Schedule AB are the "freshwater objectives", that raises a question as to the purpose and place of Objectives 6-1 and 6-2. These objectives also set out environmental outcomes but do so in a manner that introduces some recognition of the challenge and cost of reaching the values and complying with them (for reasons discussed in paragraph 112 below). The NPSFM distinguishes between freshwater objectives and freshwater values, but Ms Sweetman's approach would conflate these two concepts.

110.2 It seems to me that a freshwater objective developed in accordance with the NPSFM would describe an outcome that takes account of the full range of values present. That may mean that the ecological outcome sought is, in particular circumstances, lower than the "ideal" so as to recognise existing land use in the catchment (though it may still of course require enhancement from the status quo). In my opinion, the NPSFM anticipates that approach. The freshwater values of POP have not, however, been developed in that manner (I discuss this further below).

111 Ms Sweetman states:

The Schedule D numbers in the POP are limits that represent what is required to have healthy rivers, streams, and lakes and this is consistent with the use of the word "limits" and Policy A1a) in the NPSFM.

112 Again, I agree that technically the Schedule D numbers may be described as "limits" as defined by the NPSFM since there is an intention under Policy 6-3 of POP that water is managed so that the numerics continue to be met. However, it would be wrong in my opinion to describe Schedule D numerics as "limits" in the current context. I say that for two reasons:

112.1 As Ms Sweetman herself says at paragraph 12 of her EIC, the NPS anticipates[23] that limits are to be set so that they reflect

[23] The preamble of the NPSFM states (7th paragraph, page 3), that "Water quality and quantity limits must reflect local and national values."

local and national values set out in the preamble of the NPSFM. Those values include a list of uses of water including the cleaning, dilution and disposal of waste. While POP does include some of these values, it does so in a very narrow sense. That is, it seeks to protect water quality to be suitable for those uses. It does not take the broader approach of acknowledging the need for the uses (and economic and value extracted) and set values so as to accommodate those use values. In my opinion, that is a fundamental issue with the POP. To assume that the way values were defined and are addressed within POP is consistent with the NPSFM is, in my opinion, too great an assumption to make. It seems to me quite plausible that, with the knowledge of how values and limits are to operate under the NPSFM, the community consulted on these matters might have taken a different view than they did in the absence of the NPSFM policy framework that now applies.

112.2 It is clear to me from the evidence of Dr Scarsbrook, (paragraphs 13.3, 13.4(a)-(b), 45, 48, 178 and 189 EIC and paragraph 10 rebuttal) that some of these limits have been set too conservatively or are otherwise inappropriate (paragraph 11 of rebuttal). SIN limits, in particular, have in places been set above what a catchment in natural state can deliver. As I previously said in my EIC (paragraph 31), that is not problematic provided the numerics of Schedule D are not treated as absolute limits and flexibility is built in to the policies that refer to them[24]. However, to describe the numerics of Schedule D as "limits" for the purpose of the NPS applies a test of strict observance that is inappropriate and unachievable in at least some situations.

113 Ms Sweetman states:

> *The water management zones that are included in Table 13.1 the DV POP, and the ones that Fish and Game seek to have included in that Table are over-allocated in respect of water quality and do not meet the freshwater objectives of Policy A1a) represented by the Schedule AB Values.*

[24] I note that the Hearings Panel agreed with me. At page 8-22 (Section 8.6.5) of its decision, for example, it stated *"we note that the background water quality in the Region's rivers exceeds the Schedule D standards in some cases. It is therefore nonsensical to require discharge activities to comply with the Schedule D standards in all cases. This is the same problem that plagued the implementation of the operative Manawatu Catchment Water Quality Plan"*. Similarly, in section 8.7.17 of its decision the Hearings Panel referred back to the section from which the above quote is taken as justification for why it introduced the wording "where it is reasonably practicable" and why it required decision-makers to have "regard to" the values rather than a more absolute test. It described this as being able to *"better enable the overall approach of s5 of the RMA"*.

114 I agree that the Table 13.1 WMZs should, under the NPSFM, be regarded as over-allocated in terms of the values and numerics sought (assuming these are regarded as freshwater objectives and limits respectively). However, it is important to recall that over-allocation is defined by the NPSFM to be where a resource (a) has been used beyond a limit; or (b) is being used to a point where a freshwater objective is no longer being met.

115 If the freshwater objective is to advance the achievement of the values and numerics and that advancement continues, then it may be that the Table 13.1 catchments should not be regarded as over-allocated. If that were the case, then no targets would be required to be set.

116 Ms Sweetman states:

> *The maximum nitrogen leaching rates allowed for land within specified Land Use Capability (LUC) zones, which include step downs to year 20, and which are contained in the NV POP (amended as proposed by Fish and Game) are targets that are intended to assist in improving water quality in those catchments over time.*

117 I disagree with Ms Sweetman on this point. Targets are defined by the NPSFM as "limits that must be met at a defined time in the future". In other words, a target must first be a "limit". A limit is defined as the maximum amount of resource use available which allows a freshwater objective to be met [emphasis added].

118 If I accept for the moment Ms Sweetman's opinion that the Schedule AB values are freshwater objectives for the purpose of the NPSFM, then the target must meet that objective at the future specified time. It is very clear from the evidence of Dr Roygard and Ms Clarke that the achievement of Ms Marr's Table 13.2 leaching rates will not lead to the attainment of the objectives at year 20[25]. The scenario modelling demonstrates that, even at year 20, the LUC-based nitrogen maxima will not be met by a wide margin. In my opinion, because Table 13.2 will not meet the objectives, the numbers and staging contained therein cannot be referred to as "targets".

119 I would qualify that assessment by saying that, if the freshwater objective was described not as the values of Schedule AB but rather Objectives 6-1 and 6-2 of POP, then any numbers that deliver an improvement from the status quo could be accurately described as "targets". That is true whether or not a 20-year phase down is

[25] I refer here to the scenarios modelling of Dr Roygard and Ms Clarke that shows (refer Table 42, TEB 5241) that even Scenario 6 (that I understand to be WFG's proposal) would not deliver the target load after 20 years.

used. The "future" dimension of the target is captured by catchments taking effect under Rule 13-1 at defined future dates.

120 I disagree with Ms Sweetman's assessment that it is the Notified Version of POP (with amendments proposed by Fish and Game) that will give effect to the policies in the NPSFM in part because I consider Ms Sweetman has incorrectly applied the terminology and/or has assumed a consistency with the NPSFM that should not be assumed (as discussed above).

121 Ms Sweetman provided four specific reasons for her conclusion and I comment on each as follows:

121.1 *The regulatory framework of Chapter 13 will give effect to the policy framework in Chapter 6.*

I agree that, in planning terms, it is important to have a clear link between the RPS and the regional plan. However, I am not of the view that this is a test required by the NPSFM, or that the nature of the link can be used to suggest one planning option is more consistent with the NPSFM than another. The key point, in my opinion, is that the provisions of the regional plan will deliver the objectives of the RPS. In my view, the scenario modelling demonstrates that both Ms Marr's proposal and mine will do that.

121.2 *It provides an integrated approach to improving water quality in degraded catchments by including all intensive land use activities that have been demonstrated to lead to degraded water quality.*

I agree that integrated management is highly desirable. Again, however, the NPSFM does not refer to integrated management so I am not of the view that it is an appropriate test to apply to the assessment of relative compliance with the NPSFM. In any event, since Ms Marr's proposal only addresses a subset of land uses and only through a single means of intervention (land use consent requirement), I do not consider that it promotes a particularly integrated approach. This is particularly highlighted in the case of the coastal lakes, where the evidence of Dr Kelly calls for a range of interventions and catchment wide control of nutrients (I do not understand Ms Marr's planning regime to promote Dr Kelly's suggested approach).

121.3 *It includes targets in the form of nitrogen leaching rates that reduce over a 20 years timeframe, which will lead to improvements in water quality in over-allocated catchments.*

For reasons discussed above, I do not consider it is accurate to say that Ms Marr's version contains "targets", unless it is accepted that the freshwater objective is to advance the achievement of the water quality numerics. If that is the case, all versions contain targets. A target need not require reductions (in this case of N-loss) over time. A target is something that is a limit at a defined future time. That is not the same thing as reducing over time[26]. By catchments being introduced at specified future dates, in accordance with Table 13.1, Ms Barton's, Ms Marr's and my own version all have targets (other issues I raise aside)[27].

121.4 *It will result in improvements over time in water quality in over-allocated catchments; rather than maintenance or, or potentially a reduction in, water quality that could eventuate under the DV POP and MV POP.*

This statement was made in the absence of expert agreement over scenario modelling and in the absence of modelling of my proposed approach. As discussed above, Dr Ledgard's modelling of my approach shows advancement of achievement in terms of reducing SIN loads from dairying farms over a 10 year planning timeframe.

122 For all those reasons, I do not agree with Ms Sweetman that Ms Marr's version of POP gives effect to the NPSFM while other versions do not.

123 In my opinion, all versions give effect to the NPSFM in some ways but it is dangerous to assume they have done so appropriately in all respects. As noted in my EIC, the key point to recall is that the POP was not developed with the NPSFM is mind. Those participating in the POP development did not do so with any understanding of how it might now be used in conjunction with the terms and policies now included in the NPSFM.

124 In my opinion, it is not tenable to seek to retrofit the POP to the NPSFM by changing the terminology used.

EVIDENCE OF MR PERCY FOR MR ANDREW DAY

Trading

125 Mr Percy promotes the notion of trading nutrient leaching entitlement. Conceptually, I agree that trading provides a means of complying with a limit at least cost overall and delivering a more

[26] Similarly, reducing over time does not make a numeric a target. A numeric is a target by virtue of it being a limit that applies in the future and will achieve the objective once reached.

[27] Noting that every farm will have a specific quantified N leaching entitlement/limit than will apply at the time the resource consent is required.

efficient allocation of resources (as noted by Mr Ballingall EIC paragraph 108).

126 However, while I support trading in principle, I do not agree with the proposal put forward by Mr Percy in his EIC[28]. I say that for a number of reasons.

127 First, and most importantly, in my opinion introducing trading as proposed raises procedural issues. I understand that N leaching trading was not included in the Notified Version of POP. I am not aware that trading was specifically sought as relief in any submission or further submission.

128 That raises the issue of whether there would be people affected by Mr Percy's trading regime that ought to have been aware of the proposal through the process but who could not have been aware. In my opinion, there could be many such people.

129 Mr Percy's approach would allow any land user, whether within the targeted Table 13.1 Sub-zones or outside of those subzones, to trade N leaching entitlement with a farmer caught by Rule 13-1 (i.e. under Ms Barton's version, a dairy farmer). By adopting that approach Mr Percy has, in a conceptual sense, allocated a leaching right, and a leaching limit, to all those land users not currently caught by Rule 13-1. In my opinion, that greatly extends the scope of POP.

130 Farmers wanting to exercise the trading right imparted by Mr Percy's provisions would naturally have a very significant interest in what their right to leach and to trade would be. Would they be content with a right to trade only up to the Year 20 LUC-based entitlement (as proposed by Mr Percy)? Might other stakeholders consider that rather than the LUC-based entitlement these farmers not caught by Rule 13-1 should be kept to a grand parented right?

131 Of course we cannot know what these affected parties might have thought about Mr Percy's proposal as there has been no opportunity for those farmers to have argued their case. However given the financial implications of these questions I would expect, from a planning perspective, that affected landowners would have an interest in how these questions are determined.

132 On those grounds of procedural fairness alone I consider Mr Percy's proposal to be, well intended, but not appropriate to advance in these proceedings.

133 Secondly, the proposal does raise a number of substantive issues. Primary amongst these are the questions of:

[28] Although there are aspects I do agree with

133.1 What the allocation cap may be; and

133.2 What the allocation mechanism should be.

134 I can find little in the evidence to support the view that the allocation cap should be the sum total of what the LUC approach would deliver if applied over the entire region and to all land uses. Logically, a cap should be based on what the catchment load needs to be to achieve freshwater objectives/values. My understanding from the evidence of Dr McKay (section 42A Report) is that the LUC leaching numbers are based on what the land would leach if used to it full natural capacity. (I discuss this in greater detail at paragraph 53 of my EIC). It is not based on a maximum N load that catchments are able to collectively leach which is then shared out on a LUC basis. Thus, as I understand it, full compliance with the LUC based N leaching maxima does not guarantee water quality outcomes.

135 I would not support LUC as an allocation mechanism for the reason that it likely would impart a windfall gain on land uses that have historically operated below the Table 13.2 leaching rates. As I discussed in my EIC, a much simpler and fairer approach would, in my opinion, be to start from where we are now (i.e. grandparent existing uses, subject to some tighter regulation of the worst performers) and work back from there as required to reach N load objectives. That has the benefit of ensuring that trading incentivises N leaching efficiency gains. That is, there is an incentive to "free up" entitlement to sell. If there is simply unused entitlement to sell, the value will likely be low. If that were the case there would be low incentive to create entitlement through on-farm improvement. There may be lots of trades but not necessarily lots of improvement being driven. The gains could be "paper gains" rather than real gains.

136 That brings me to my last concern. I consider that there has been insufficient work done on modelling how such a market might work and what we could expect it to deliver. While the theoretical efficiency benefits are well understood, the actual costs and benefits that such a regime is likely to produce have not been investigated. In short, in my opinion there has not been sufficient policy development work and analysis completed to be able to support a proposal for trading at this time.

137 On that point, I note also Mr Ballingall's rebuttal evidence where he also notes the theoretical benefits of trading but raises questions regarding its practicality (paragraph 91) before concluding:

> *I would just reiterate my earlier EIC that the N-trading proposal is a major initiative that warrants much more*

detailed analysis before its effectiveness and efficiency can be assessed.

138 In my opinion, the way Ms Barton has addressed the question of trading in her proposed Policy 6-7A is appropriate at this time.

139 On the question of grand parenting being an appropriate planning technique for present purposes I note that Mr Percy states (paragraph 34, Percy EIC) that he agrees with the limitations that Mr Day has highlighted.

140 Mr Day's limitations appear to be that grand parenting:

140.1 Does not reflect the capital value of individuals' holding in land and disproportionately loads the costs associated with change on the least intensive farmers (paragraph 50);

140.2 Does not consider whether the land is being used efficiently (paragraph 51); and

140.3 Leads to significant wealth transfer (paragraph 59).

141 With respect, in my opinion, Mr Day misconceives what Rule 13.1 does, and does not, do. Activities not caught by Rule 13.1 (i.e. all other than dairying) are not constrained and may increase their N leaching without limit. There is no obligation, implied or otherwise, that non dairy land uses also need comply with Table 13.2 limits, or that they will be required to do so in the future. Nor is there any inference, in my view, from any of the planning provisions that the burden of meeting water quality outcomes will fall on the least intensive farms. In my opinion the contrary is true. Under my proposal the 25% highest leaching dairy farms will face the highest expectations of change and hence cost burden.

142 The limits imposed by Table 13.2 (and/or by my grand parenting approach) is not, strictly speaking "allocation"[29]. Rather, the limits are simply performance standards that apply (under my version at least) to dairying and dairying only.

143 There can be no wealth transfer in that if any non dairy farmer (e.g. a sheep and beef farmer wishes to intensify their current operation they can do so without being caught by Rule 13-1. If they wish to convert to dairy they are entitled to do so (subject to the resource consent process). They would have to comply with the same performance standard as applies to all dairy conversions (which I

[29] I say this because it does not represent an allocation of a fixed load to all current contributors to that load.

understand is a higher leaching rate than sheep and beef farms experience[30]).

144 I could agree with Mr Day only if the planning regime locked in existing uses in perpetuity allowing no further land use intensification. In my opinion, it does not do that.

145 It may be that the regime proposed will not deliver the water quality outcomes desired by the Manawatu community in the future. That is to be seen. But it is speculative, in my view, to assume that that possible future outcome will result in planning provisions that impose a restrictive regulatory environment on activities not previously regulated under Rule 13-1 in a way that disadvantages them relative to current dairy farmers.

146 I similarly disagree with the view that grand parenting disregards whether land is being used efficiently. My approach facilitates land use change and intensification (as the LUC approach applies at the time of land use change).

147 Finally there is a view[31] that grand parenting rewards the worst polluters. As I have explained in my EIC, my approach is a hybrid grand parenting approach that does not automatically grandparent entitlement to the highest 25% of N leaching farms. In my opinion that overcomes the concern.

Definition of nutrient use efficiency

148 One final minor matter relates to the definition of *nutrient use efficiency* as set out in my EIC. I propose that the concept of nutrient use efficiency is used within the Policy 13-2C framework.

149 In simple terms, this concept is relevant where a farmer operating below the Table 13.2 rates wishes to increase (by way of a restricted discretionary activity consent) up to the Table 13.2 rates. The policy allows for this provided the farm, maintains the same or better N use efficiency. I considered this important to ensure that farms with a potential Table 13.2 entitlement that exceed their grand parented rate do not use their potential Table 13.2 entitlement by simply loosening their N management.

150 Reference to N use efficiency ensures that any N leaching increase is accompanied by a production increase. Dr Ledgard refers to N use efficiency in his rebuttal evidence and I understand his definition to be more technically correct than the one I included in my EIC.

[30] Refer Roygard and Clarke Supplementary Evidence, paragraph 133.

[31] As expressed by Alison Dewes at paragraph 8.14 of her EIC.

151 I have made the amendment to the Glossary attached as **Appendix 1** to reflect Dr Ledgard's advice.

Gerard Matthew Willis
18 April 2012