

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the hearing of submissions on the Proposed Natural
Resources Plan

BY **FEDERATED FARMERS OF NEW ZEALAND**

TO **WELLINGTON REGIONAL COUNCIL**

**Federated Farmers
Summary Statement for Hearing Stream Three
Water Allocation; Natural Form & Function**

6 September 2017

INTRODUCTION

- 1 My name is Jamie Falloon. I have been President for the Wairarapa-Wellington-Kapiti Province since 2012. With me is Elizabeth McGruddy, FFNZ Senior Policy Adviser. As outlined in Hearing Stream One, our experience and qualifications do not qualify us as experts in any one field. Our advocacy on behalf of members is informed by a concern for robust process supported by clear evidence and analysis, and appreciation of farming practicalities. This statement summarises FFNZ relief sought with reference to the s42A recommendations.

EXECUTIVE SUMMARY

- 2 Water abstraction is a small proportion of the total water balance, eg, in the Ruamahanga catchment, abstraction is 8% of the total water balance.
- 3 Across the region, municipal supply is the largest use (particularly in the west), followed by irrigation and water races (particularly in the Wairarapa).
- 4 Allocation status varies from significantly under to fully allocated: actual water use is less than “paper” allocation, and varies seasonally (higher in summer, subject to restrictions).
- 5 Most water (two-thirds) is sourced from surface flow; only 2% is harvested at high flows, only 1% from storage.
- 6 The key challenge for the region is dry summers.
- 7 The key opportunity is to harvest and store more water at higher flows, to support improved reliability for out-of-stream values, and enhanced flows for in-stream values.
- 8 FFNZ seek that the pNRP provide an enabling framework for supplementary takes and storage; supported by ongoing attention to improving efficiency of use.
- 9 Whaitua committees will review minimum flows and allocation regimes supported by whaitua-specific data and groundwater/surface water models.
- 10 Significant investment has been made in developing models to support a management framework to respect and provide for all values: ongoing investment is required to improve data, reduce uncertainties, and better provide for dynamic, adaptive water management.

pNRP FRAMEWORK & PRINCIPLES

- 11 **Guiding Principles:** FFNZ support the principles set out in the Introduction (1.3):
- *Te Upoko Taiao intend that the plan will be achievable, practical and affordable*
 - *“Mahitahi (partnership) – partnership between WRC, iwi and the community, based on a commitment to active engagement, good faith and a commonality of purpose*
 - *“Ongoing collaboration between regulators, resource users, iwi, government and the wider community will be required to manage the region’s resources effectively.*
- 12 **Statutory Framework:** FFNZ support the intent set out in the Introduction (1.5.1) to: *progressively implement the requirements of the NPS-FM by 2025. The key feature of this programme is the catchment-based collaborative community approach – the whaitua process. Whaitua committees will work with their catchment communities to develop recommendations for objectives and limits.*
- 13 **pNRP framework for maintenance and prioritised improvements:** FFNZ support the intent that the pNRP provide a framework for maintenance pending the whaitua recommendations. FFNZ agree that the pNRP may indicate priorities for whaitua attention (eg, as for contact recreation), and may prioritise areas for active investigation to support whaitua deliberations (eg, as in Method M10 water quality investigations).

FFNZ GENERAL RELIEF SOUGHT

- 14 FFNZ general relief sought is intended to give better effect to the intent and principles outlined above, including that the pNRP:
- Respects and provides for an appropriate balance across all values and uses of water
 - Provides an enabling framework for catchment partnerships
 - Takes a proactive approach to identifying/addressing knowledge gaps in key areas.
- 15 For water allocation, our relief more specifically centres around:
- Respecting and providing for security and reliability of supply, including for irrigation
 - Providing an enabling framework for water storage
 - Taking a proactive partnership approach to improving the data and models underpinning the water management framework.

SECTION 42A REPORT – WATER ALLOCATION

Issues

- 16 The s42A report briefly identifies two issues (6.1), ie, *“increasing demand”* and potential *“adverse effects”* on instream values, with reference to an almost equally brief description of issues in the s32 report (2.1, 2.2).
- 17 The FFNZ submission referred to guidance from MfE, ie, *“the degree of clarity about the problem will influence the type and range of policy solutions considered, and the quality of analysis of the options”*. These next paragraphs briefly set out our understanding of water allocation and use in the region to provide context for FFNZ relief sought.
- 18 **Allocation:** municipal water supply is the largest single user of water in the region - Wellington 94%, Kapiti 76%, Wairarapa 13% (region wide average 40%), followed by irrigation (35%) and water races (20%)¹.
- 19 **Trends:** water allocation increased by around 50% from 1990-2010 – municipal supply increased off a high base (from 140 to 165M m3/pa), irrigation increased off a low base (from 40 to 150M m3/pa)². The biggest increase in irrigation allocation was in the period from 1998-2008, coinciding with drought years in the Wairarapa.
- 20 **Droughts:** WRC analysis of years with significant soil moisture deficit in the Wairarapa found that in the period 1997/8-2007/8, 5 out of 10 years had significant soil moisture deficit. Against a long-term average (1972-2008) of 75 days, significantly extended deficit periods were experienced in 1997/8 (155 days), 2000/1 (100 days), 2002/3 (130 days), 2006/7 (110 days), 2007/8 (120 days)³.
- 21 **Allocation status:** varies across the region, eg, Otaki River 20%, Lower Ruamahanga 70%, Papawai Stream 99%.
- 22 **Use:** allocation status is tempered with the caveat that actual use is likely to be significantly less than consented (paper) allocation, eg, irrigation use is predictably higher in the peak of the irrigation season (potentially up to 80% of allocation), than on an annual basis⁴.

¹ GWRC, 2012, Freshwater allocation and availability in the Wellington Region, Table 3-2

² GWRC, 2012, Freshwater allocation and availability in the Wellington Region, Figure 3.6

³ GWRC, 2010, Wairarapa Valley Groundwater Resource Investigation

⁴ GWRC, 2012, Freshwater allocation and availability in the Wellington Region, Para 2.6.2

- 23 **Abstraction:** water abstraction is a small proportion of the total water balance (rainfall and recharge less evapo-transpiration and abstraction), eg, in the Ruamahanga valley, abstraction (70,000 m³) is 8% of the annual average water balance (900,000 m³). Predictably, the water balance shows seasonal patterns, eg, Upper Valley abstraction winter 0.2%, summer 13%.⁵
- 24 **Source:** two-thirds is sourced from surface water, of which 97% is run-of-river from “normal” flow, 2% is supplementary or high-flow allocation, and less than 1% is from storage dams⁶.
- 25 **Effects:** WRC are cautious in drawing conclusions from the data to hand⁷ (our emphasis):
- *“The observed decline in annual rainfall minima and low flow magnitude and frequency since the mid-1990s is important in the sense...it implies there has been a recent reduction in water availability during times of highest demand, and possibly additional stress on river systems.*
 - *However, there is no evidence to suggest the trend will continue beyond historical ranges in the medium-term future. Longer term, projected seasonal changes in rainfall resulting from climate change indicate water stress may become more of a problem in the Wairarapa, and less of a problem in the west over the coming century”.*
 - *“The increase in abstraction in the last two decades was substantial and is expected to have had some additional depletion effect on rivers. While the magnitude of the effect will to some extent have been mitigated by low flow restrictions, the duration of low flows at the bottom of some catchments may well have increased. Effort is needed to improve “bottom-of-catchment” monitoring in the future.”*
- 26 FFNZ agree that reliability of water is currently compromised during dry summers, and agree that improved low flow monitoring is required to better understand effects in the river.
- 27 **In summary:** historically, surface water takes were the first and easy option (still two-thirds). The RFP then promoted groundwater takes in preference to surface water (around one-third). For the pNRP, in our opinion, the key issue now is enabling water storage to better support all the values and uses of water through dry periods. FFNZ agree that tidying up any “paper over-allocation” and “improving efficiency” are useful measures, but these measures will not improve reliability - or support enhanced in-stream values - in dry summers.

⁵ GWRC, 2010, Wairarapa Valley Groundwater Resource Investigation: Upper Table 9.1, Middle Table 9.2, Lower Table 9.1

⁶ GWRC, 2015, s32 Report Water Quantity, para 2.2

⁷ GWRC, 2012, Freshwater allocation and availability in the Wellington Region

Consultation

28 The s42A report (6.2) references the s32 summary of the results of community engagement, ie, that *“people wanted water allocation constrained within ecological limits”*.

29 The s42A report omits the additional finding in the s32 report (3.2.4) that: *“groups were generally supportive of increased water storage capacity and irrigation of land”*.

30 Both statements derive from a public engagement exercise undertaken in 2010 which concluded inter alia⁸ (our emphasis):

- *“The RMA was generally seen as an involved and expensive process that over-regulated natural resources”*
- *“The general public and iwi participants emphasised the need for an integrated catchment management approach to natural resource management which involved collaboration with all resource users”*.

31 This last point is relevant to FFNZ relief sought, including for a collaborative approach to improving the groundwater models underpinning the management framework.

Pre-hearing meetings

32 The s42A report attaches minutes from pre-hearing meetings, including two meetings convened on water allocation provisions.

33 FFNZ note the undertaking to circulate proposed revisions was not followed through.

⁸ GWRC, 2011, Your view about our environment, page 226

Values

- 34 The RPS (Objective 12) directs that the quantity of water meets the range of uses and values for which water is required.
- 35 The pNRP sets out the multiple values and uses of water, including primary production (food and fibre). FFNZ have recommended amendments to Table 1.1 including to emphasise the importance of secure and reliable supply for irrigation to support primary production values.
- 36 The s42A report does not explicitly discuss values.
- 37 The s32 Water Quantity report does discuss values, firstly in relation to retaining currently operative minimum flows (6.2.1): *“The whaitua will consider for each catchment all the values that are relevant to setting minimum flows under the NPS-FW. Rather than include new flows now based on partial information (recreation and ecology values only), it is more appropriate for minimum flows to remain as they are in the interim”*. FFNZ agree.
- 38 By contrast, the s32 report (6.4) takes the opposite approach on retaining currently operative allocation (our emphasis): *“When establishing core allocations in the pNRP, reliability of supply has not been applied. Instead the default approach discussed below has been used. An important component of work the whaitua will do is consider...values such as reliability of supply in coming up with final catchment limits”*.
- 39 This change is proposed without justification or analysis relative to the “base case”, ie, for core allocation to remain as it is in the interim, pending whaitua considering all values relevant to setting allocation limits.
- 40 The s32 analysis (Table A8) refers only to catchments which do not currently have core allocation under the Regional Freshwater Plan. FFNZ concur that in these (relatively few) cases, it is appropriate the pNRP provide “default” allocation, pending whaitua consideration.
- 41 It is currently a significant omission that the s32 report does not provide any analysis (risks of acting or not acting) for the majority of rivers which already have allocation set under the RFP.
- 42 In the absence of any such analysis, FFNZ relief seeks that currently operative core allocations be retained, consistent with the proposals for minimum flows, and to give better effect to RPS Objective 12.

Objectives

- 43 The s42A report does not have an explicit section on objectives; instead referring to notified objectives, as they relate to key issues raised in submissions.
- 44 FFNZ relief is not discussed in any detail, and is generally recommended to be rejected.
- 45 This section sets out objectives relevant to FFNZ relief, showing red-line objectives with FFNZ relief highlighted in blue.

O2 : The importance and contribution of land and water to the social, economic and cultural well-being of the community are recognised.

O5: Fresh water bodies and the coastal marine area, ~~as a minimum~~, are managed to provide an appropriate balance across values and uses in a catchment:

- ~~(a) — safeguard aquatic ecosystem health and mahinga kai, and~~
- ~~(b) — provide for contact recreation and Māori customary use, and~~
- ~~(c) in the case of fresh water, provide for the health needs of people.~~

O7: Fresh water is available in quantities and is of a suitable quality (E. coli not > 1000/100ml) for the reasonable needs of livestock. The importance of reliable access to drinking water for livestock is recognised and provided for.

O8: The social, economic, cultural and environmental benefits of taking, storing and using water are recognised and provided for within the Plan's allocation framework

O52: The reliability and efficiency of allocation and use of water is improved ~~and maximised~~ through time ~~., including by means of:~~

- ~~(d) — efficient infrastructure, and~~
- ~~(e) — **good management practice**, including irrigation, domestic municipal and industry practices, and~~
- ~~(f) — maximising reuse, recovery and recycling of water and contaminants, and~~
- ~~(g) — enabling water to be transferred between users, and~~
~~enabling water storage outside river beds~~

Policies

- 46 The s42A report does not have an explicit section on policies except as they relate to issues.
- 47 FFNZ relief is generally recommended to be rejected.
- 48 This section sets out policies relevant to FFNZ relief, showing red-line policies with FFNZ relief in blue (not including some more detailed policies discussed later in this statement).
- 49 FFNZ agree with the Officer recommendation to re-focus O52 above (deleting the policy components). We make consequential recommendations (consistent with our original relief) for amendments to P11 and to FFNZ New Policy – Primary Production, to incorporate elements otherwise deleted.
- 50 FFNZ do not agree with the recommended amendment to P107 (b): in our view, it is inconsistent with intent and the rule framework.
- 51 FFNZ do not agree with the recommended amendment to P119: in our view, it is inconsistent with the intent for a “level playing field”.

P1: Air, fresh water bodies and the coastal environment will be managed recognising ki uta ki tai by using the principles of integrated catchment management. These principles include:

- (a) decision-making using the catchment as the spatial unit, and prioritising catchments over the short to medium term for coordinated community action
- (b) applying an adaptive management approach to take into account the dynamic nature and processes of catchments, with appropriate timeframes for monitoring progress and testing management approaches, and
- (c) coordinated catchment management building on the existing river, lake and catchment schemes and coordinating with TAs and industry to support with science, resources and extension services, with decisions based on best available information and improvements in technology and science, and robust cost-benefit analysis of catchment options
- (d) taking into account the connected nature of resources and natural processes and communities within a catchment, and
- (e) recognising links between environmental, social, cultural and economic sustainability of the catchment.

New Policy – Primary Production: The benefits of primary production, manufacturing, distribution and processing are recognised and provided for by:

- (a) Recognising existing land uses and investments, including capital and operational investments in sustainable farming practices and environmental stewardship
- (b) Supporting the ongoing use and development of land, recognising the need for flexibility to respond to seasonal fluctuations and changing markets
- (c) Providing for any requirements for significant new capital investments to be made only in the context of robust cost-benefit analysis
- (d) Providing transition times to meet new requirements or catchment limits
- (e) Providing consent durations of at least 25 years to support certainty of investment in water infrastructure
- (f) Working alongside industry and landowner/catchment groups to support the ongoing development of sustainable farming systems, and to enable collective or cross-catchment solutions to meet objectives

P3: The pNRP establishes a framework for whitua committees, facilitated by WRC, to consider values and priorities locally. Where values conflict, whitua will arrive at an agreed balance between the levels at which each value will be provided for, including where and when and to what level they apply across a catchment. Use and development shall be managed with a precautionary proactive approach to research and monitoring where there is currently limited information regarding the ~~receiving environment and the effects and any adverse effects are potentially significant effects the activity may have on the environment~~

New Policy – Research and Monitoring: The regional research programme will prioritise:

- a) water quality investigations in priority catchments and waterbodies, as set out in M10
- b) validation and calibration of catchment water balance models, including validation/calibration of sub-catchment and seasonal water balances
- c) critical analysis of key data gaps, assumptions and uncertainties in the current conjunctive water framework, including ground-truthing Category A, B, C connections and boundaries
- d) expanded sites for improved measurement and monitoring of minimum flows

The regional research programme may be extended on the recommendation of whitua committees to address key areas where there is limited information, including *inter alia*:

- (a) monitoring of indigenous fish, including threatened or taonga species, to assist in prioritising initiatives to safeguard indigenous species and mahinga kai

P11: The benefits associated with the damming and storing of water outside or within the bed of a river are recognised including when:

- (a) there are significant social and economic benefits for the region, and
- (b) water remains available for multiple in-stream and out of stream uses concurrently, and
- (c) the reliability of water supply improves as a result, and
- (d) the damming and storage of water contributes to the efficient allocation and use of water.

P107: The framework for the take and use of water recognises:

- a) groundwater connectivity to surface water ~~shall be managed as described in Schedule P Table 4.1⁹ (groundwater connectivity), and~~ and recognises expanded low flow monitoring and validation/calibration of the models for groundwater connectivity to surface water are required to support whitua review of minimum flow and allocation regimes
- b) the take and use of water does not exceed core allocation amounts provided for in the Plan, and
- c) minimum flows or water levels are managed in accordance with the Plan provisions, and
- d) permitted and controlled activities provided for in the Plan and section 14(3)(b) and (e) takes are not included in the allocation amounts, or subject to minimum flows or water levels.

P119: Unused water allocated to an existing resource consent (excluding existing resource consents for community or group drinking water supplies) may be re-allocated to the same user when the existing resource consent is replaced, or the abstraction rate is changed, only if the consent holder can demonstrate how the unused water will be used within four years, including by means of:

- a) capital expenditure programme linked to the purpose water is used for, and
- b) satisfying the reasonable and efficient use criteria identified in Schedule Q (efficient use).

P120: The taking of water for storage outside a river bed at flows above the median flow is appropriate provided Policy P117 is satisfied.

⁹ Section 42A report: Water allocation Issue 2.2

Key Issues raised in Submissions

- 52 **Giving effect to the NPS-FM:** FFNZ generally agree with the Officer discussion, specifically that the whitua chapters are intended to give effect to the NPS-FM; and that *“given that allocation levels are still being considered through the whitua process, I consider it is appropriate that the proposed plan, as yet, does not contain provisions to phase out over-allocation”*.
- 53 **Framework for allocating water:** FFNZ generally agree with the Officer discussion, specifically that: *“The whitua committees are tasked with establishing water quality limits, water quantity limits and integrating management”*.
- 54 **Conjunctive Management Framework:** the s42A summarises submitter concerns as being that the model used to derive the conjunctive management framework is *“too uncertain”*.
- 55 In response, the Officer recommends dismissing submitter concerns (our emphasis):
- *“I consider the information and models used to develop provisions in the pNRP are founded on the best information available, given the complexities of groundwater systems. There is enough certainty at a catchment and sub-catchment level to have confidence in the mapped groundwater categories”*.
 - *“In addition...Schedule P allows for local variation to be considered through the resource consent process...Such clear new hydrogeological evidence may be advanced by an applicant seeking a new consent, or an existing user amending an existing consent...the onus is on the applicant”*.
- 56 FFNZ make the point that the Officer has mis-interpreted the FFNZ submission. We understand the inevitable limitations in models. The critical point is firstly, that the assumptions and uncertainties must be explicitly stated before relying on model estimates in policy; and secondly – recognising the uncertainties - the process for improving the model.
- 57 The FFNZ submission was informed in part by the MfE Guidance for Freshwater Accounting¹⁰ which emphasises an estimate produced by a model is only complete if it is accompanied by a statement of the uncertainty:

¹⁰ MfE 2015, Draft Guidance for Regional Authorities

- *“It is important that stakeholders understand the uncertainty, particularly in setting limits. This uncertainty should be explicitly stated”*
- *“In high priority FMUs with issues of over allocation, it may be necessary to reduce the uncertainties to provide the necessary confidence in the outcomes of decisions”*
- *“In situations where decisions have to be made despite high levels of uncertainty, additional processes should be put in place to manage the associated risk”*
- *“It may be appropriate for a programme of work to be outlined where, over time, uncertainties can be reduced and estimates refined (eg, through improved input data as a result of better monitoring) to allow decisions to be reviewed in the future”.*

58 This last point is material to the FFNZ submission. Briefly recapping, FFNZ recommends:

- Expanded low flow monitoring (including in the lower Ruamahanga below Waihenga)
- Critical analysis/groundtruthing of key information gaps, assumptions and uncertainties in WRC groundwater/surface water models
- Critical analysis/groundtruthing of Category A/B/C ground/surface water connects
- Calibration and validation of sub-catchment (not just global) seasonal water balances.

59 To help give effect to these recommendations, FFNZ recommend changes to pNRP provisions as above, including Policy 3, recommending a proactive approach to research and monitoring where there is currently limited information and New Policy Research and Monitoring.

60 For clarity: FFNZ acknowledge the substantial work invested in developing the Ruamahanga groundwater model. Our concern is that all parties have an interest in ongoing improvements.

61 In this context, we do not agree that WRC needs to “defend” the model as being the “*best available*” and “*certain enough*”; and we do not agree that the model should be “set in stone” other than at the initiative of consent applicants.

62 We briefly note here that the s42A report expects that new applicants may advance new hydro-geological evidence: we suggest this is unlikely in the context of current pNRP provisions for prohibited status (we return to this point later).

63 Evidence is presented by Dr Gyopari describing the development of the Ruamahanga groundwater model, and including reference to peer review of the model:

- *“A stringent model peer review process audited the underlying data and assumptions used to build the models and provides assurance that the FEFLOW models are fit for purpose and meet or exceed industry best practice” (para 17.3)*
- *“The FEFLOW models were subject to a comprehensive peer review by modelling experts at EHS (Australia)...an additional higher level peer review (was) carried out by Dr John Bright of Aqualinc Research. Together, the peer reviewers concluded that the models were constructed to a high standard and are considered appropriate as resource management quantification tools” (para 10.1, 10.2).*

64 Evidence is also presented by Mr Hughes in relation to the management framework which derived from the groundwater model. No reference is made to any independent peer review.

65 It is our understanding that WRC commissioned two independent reviews of the Ruamahanga groundwater model (only the first is referred to in Dr Gyopari’s evidence):

- EHS (Australia), 2010: review of models for the middle and upper valley catchments
- ESR (NZ), 2012: desktop study - uncertainty of middle valley model predictions

66 FFNZ is not currently aware of any independent review of the lower valley groundwater model: in our view this is a surprising omission, but one which could be readily rectified.

67 It is also our understanding that WRC commissioned two independent reviews of the proposed conjunctive management framework (the first is referred to by Dr Gyopari, but the model itself was not in scope for these reviews):

- Aqualinc, 2013: peer review – conjunctive management of surface and groundwater
- Elemental Geo-consulting, 2012: technical review – conjunctive framework

68 The following paragraphs briefly summarise points made in each of those four reports, as they are relevant to FFNZ relief sought.

69 The EHS report¹¹ concluded that the models conform to best practice in most aspects - evaluation against 83 criteria gave a score of 297 from a maximum 415 - while identifying areas for improvement:

¹¹ RPS, 2010, Wairarapa Valley Groundwater Modelling Study – peer review of numerical groundwater flow models for the middle and upper valley catchments

- *“Some points of concern remain, specifically quantification and spatial distribution of recharge...the uncertainty in model predictions should be resolved if practicable”*
- *“Groundwater recharge/discharge processes are not adequately characterised”*
- *“Additional continuous stream gauging data should be collected”*
- *“The calibration performance measures both should be low. The scaled error in some of the target bores is >100% indicating the predictive errors may be greater than the model response”*
- *“In response to the initial critique that for the Upper Valley, there is a relatively small amount of abstraction compared to very large amounts of recharge, the GWRC team responded that declining water levels are localised, and the water balance is global...the presentation of text and supporting figures to explicitly illustrate the ‘hotspot’ issue would improve the report”.*

70 The last point is relevant to FFNZ recommendations to publish the sub-catchment water balances (not least to assist in prioritising investigative and remedial works); and the earlier points are relevant to FFNZ support for submissions lodged by Wairarapa Water Users Group and Mr John Barton.

71 In 2012, WRC commissioned ESR¹² to quantify the reliability of the model predictions – as noted above, scope was restricted to the middle valley only. The findings included that:

- *“Many of the model parameters remain uncertain even after the calibration process”*
- *“Increased knowledge of hydraulic conductivity parameters was most commonly identified as the parameter group which supports predictive reliability the most”*
- *“The critical predictive simulations all focussed on the magnitude of impacts, however the lag...is also important and was a central component in assigning management approaches. Future analyses could focus on these lags”.*

72 In 2013, WRC commissioned Aqualinc¹³ to conduct a peer review of the conjunctive framework. The findings included that the proposed framework is representative of current best practice. Review of the groundwater modelling reports was outside scope, but Aqualinc did review aspects of recharge, finding:

¹² ESR, 2012, Desktop Study – Uncertainty of Wairarapa middle valley numerical groundwater model predictions

¹³ Aqualinc, 2013, Peer Review: Conjunctive management of surface and groundwater abstraction

- *“The groundwater modelling assumed there was no change in drainage as a result of irrigation. This is definitely not the case...the groundwater modelling is almost certainly over-estimating the effects of taking groundwater and using it for irrigation”.*

73 In 2012, WRC commissioned a review of the management framework by Elemental Geoconsulting¹⁴. The report raised queries and made suggestions including:

- *“I consider that screen depth is a significant issue...generally speaking, deeply screened wells can be expected to have a lower stream depletion effect than shallow(er) ones”*
- *“I have presumed there is bore log information to (support vertical zonation). I do not recall seeing that this is the case in the document. It might be worthwhile to be as explicit as possible about the depth and lateral zonation being supported by bore logs”*
- *“If the Council obtains information that the depth to Category B, or the width of Category A, or both are incorrect, as a result of a new aquifer test, what would the Council do to redress the situation?”*

74 Again, the points raised by ESR, Aqualinc and Geoconsulting are relevant to submissions made by FFNZ, and by WWUG and Mr John Barton. The last point highlighted is central to FFNZ concern that the pNRP actively provide for ongoing improvements and adaptive management.

75 We note this matter was raised during the pre-hearing meetings, with suggestions that relying on consent applicants is an inefficient and somewhat arbitrary approach. A suggestion was made that provision be made for a method to support regular review (we return to this later).

76 The WRC evidence does not explicitly declare the various uncertainties, nor describe any specific work programmes to improve data and reduce identified certainties.

77 **In summary:** without taking anything away from an impressive body of work, the model was the best it could be at the time, but it is not the best it could be. At minimum, independent peer review and uncertainty analysis of the lower valley model is required; supported by an explicit programme of work to improve data and reduce uncertainties in key areas identified; alongside explicit provisions in the pNRP providing for regular review and update of the model architecture, which may in turn require review of the derived management framework.

¹⁴ Elemental Geoconsulting, 2012, Technical review of three conjunctive management framework documents

- 78 **Minimum Flows:** the s42A report discusses submissions seeking clarification of the pNRP definition of mean annual low flow(MALF): *“the average of the lowest flows measured in each year of a full site record”*.
- 79 The FFNZ submission was silent on the definition, but we concur with submissions seeking more clarity (eg, clarifying 7 day MALF, clarifying the period of record).
- 80 The Officer notes some inconsistencies in terms used across various provisions, including a footnote to Table 7.3 referring to: *“the natural seven-day mean annual low flow”*.
- 81 FFNZ relief seeks deletion of this table - including the footnote referring to “natural” 7d MALF – in favour of retaining current RFP allocations.
- 82 The Officer goes on to propose a new definition which is different to both the notified definition and the notified footnote: *“naturalised ~~average of the mean annual low flow measured in each year of a full site record~~ with a duration of seven days”*.
- 83 FFNZ do not agree with the Officer recommendation. This proposed new definition is fundamentally different to the definition notified, and is proposed without reference to scope.
- 84 The proposed new definition strikes through reference to measurement of low flows, apparently in favour of an un-defined “modelled” approach to estimating low flows.
- 85 Our concern is first that definitions should stand on their own for the ordinary, reasonable reader.
- 86 More importantly – throughout the development of the pNRP – FFNZ has consistently recommended to WRC the importance of improved low flow monitoring. Our understanding is that flow monitoring in the past has tended to be focussed on locations higher in the catchment, particularly for the purpose of flood warnings; and that monitoring equipment lower in the catchment can be vulnerable to being dislodged.
- 87 Appreciating this context and appreciating that historical low flow monitoring data is patchy, WRC recognise better low flow data is required (as noted earlier), and it is our understanding that more work has been done at least in the Ruamahanga, and that plans for further improvement may be underway. FFNZ expect that this improved information will be an important input to whitua review of minimum flow and allocation regimes.

- 88 For clarity: FFNZ is acutely aware that extended low-flows may impact in-stream as well as out-of-stream values. We briefly make the point that – in a recent drought year – we specifically recommended that WRC up the ante on monitoring, specifically to assess the health of the indigenous fish.
- 89 The FFNZ submission includes specific recommendations in this area as noted above including:
- New Policy – Research and Monitoring: “expanded sites for improved measurement and monitoring of minimum flows”, and “monitoring of indigenous fish populations, including threatened and taonga species to assist in prioritising initiatives to safeguard indigenous species and mahinga kai”; and
 - Figure 7.1 - Minimum Flow management points: recommending expanded points.
- 90 The s42A report does not discuss the first, and rejects the second.
- 91 **In summary**: FFNZ support improved measurement of low flows. FFNZ does not support use of modelled estimates, be they “*natural*” or “*naturalised*”, to underpin the pNRP management framework.
- 92 **Default allocation regime**: it is our understanding that the purpose of developing “*naturalised*” MALF estimates is to not to replace RFP minimum flows. Instead, this methodology was developed to support a “*default*” allocation regime, intended in part to signal catchments which potentially warrant a higher level of scrutiny through the whaitua process.
- 93 The general effect is to change allocation status: catchments which are currently under-allocated may now be deemed to be “*fully*” allocated; catchments which are currently fully allocated may be deemed to be “*over*” allocated.
- 94 Recapping the context (our emphasis): “*Consented allocation has increased significantly since the RFP became operative. While this increased allocation has not led to a large-scale deterioration in environmental quality, there are signs in some catchments of abstraction impacting water quality*”.¹⁵

¹⁵ WRC, 2013, draft Minimum Flow and Allocation Recommendations

- 95 In our opinion, this context would appropriately be reflected in the pNRP, ie, that the pNRP identify these “*some catchments*” as priorities for whaitua attention, consistent with the approach for contact recreation, and consistent with Method M10.
- 96 This statement regarding “*some catchments*” references a further document¹⁶ (two pages in length) which indicates that the Waiohine is one of those catchments: “*In order to maintain 90% of brown trout habitat at mean annual low flow in the middle and lower reaches of the Waiohine river, a flow of 2,770 L/s is required at the Waiohine Gorge*”.
- 97 This statement in turn relies on a further report¹⁷ which makes the statement in italics above and goes on to say: “*Alternative minimum flows are also provided that could serve as a basis for negotiation among stakeholders on what is ultimately an acceptable minimum flow, taking into account the relative instream values and the value of out-of-stream water use*”. These alternate flows illustrate a range of possible flow bands (optimum, 90%, 80%); and illustrate that flow preferences for trout are generally higher than for native fish.
- 98 FFNZ do not agree that higher flow preferences for trout on the Waiohine River amount to evidence of “*abstraction impacting water quality*”; and do not agree with WRC evidence to this hearing¹⁸ that existing minimum flows for the Waiohine were found to be “*too low*” to sufficiently protect the habitat of trout.
- 99 As noted above, the technical work undertaken provides a range of flow bands for indigenous fish and for trout. FFNZ expect that the Ruamahanga whaitua process will engage with the flow range estimates for Waiohine and other rivers – alongside fuller consideration of all values - and determine the extent to which trout vis-à-vis native fish vis-à-vis irrigation and other values can be appropriately respected and balanced.
- 100 WRC acknowledge that the “default” allocations are “interim” pending whaitua processes: “*Allocation amounts will be refined by whaitua committee on the basis of fuller discussions about both instream and out-of-stream values, and development of firmer catchment objectives*”¹⁹.

¹⁶ Keenan, 2009, Internal staff report to GWRC Regulatory Committee, 21 October 2009

¹⁷ Cawthron, 2009, Instream Flow Assessment for the Waiohine River

¹⁸ Statement of Evidence of Mike Thompson, para 5.8

¹⁹ Statement of Evidence of Mike Thompson, para 6.6

101 WRC acknowledge the need to balance values (our emphasis): *“In their most complete form, minimum flow and allocation limits will represent a point of agreement after full consideration of in-stream and out-of-stream values and objectives, and the necessary trade-offs between these values has been made”²⁰. An independent peer review endorsed this approach: *“It is important that default minimum flows, or even river specific minimum flows, do not over-ride the opportunity to examine this balance”*²¹.*

102 Notwithstanding these acknowledgements, the proposed “default” approach does not attempt to balance values:

- *“It is acknowledged that...there has been no attempt to balance water user security of supply requirements with the flow requirements identified for the maintenance of in-stream values”²²*
- *“GWRC have not yet been through a process of determining allocation limits based on a balance of in-stream and out-of-stream values. Such a process is not science driven, but requires coordinated community and water user input to determine the acceptability of trade-offs”²³.*

103 WRC do acknowledge the need to respect existing uses (but not new uses): *“With regard to existing users, the interim approach recommended in the Working Document for Discussion includes the principle that existing users can retain water currently allocated...the reason for adopting this principle is that the social and economic benefits associated with existing water use should only be altered in the context of a thorough analysis of all relevant values that will be explored in the whitua process”²⁴. FENZ agree.*

104 WRC evidence acknowledges the limitations of the proposed default approach: *“There remain some limitations with the proposed approach. Foremost amongst these in my mind is that rivers have different values, and respond differently to abstraction pressures”²⁵.*

105 We note here that, in contrast to the relatively crude “default” approach proposed for rivers, WRC support a more sophisticated approach for Lake Wairarapa: *“Requiring a cease take when minimum target levels are not met (as has been stipulated in the past) is overly simplistic.*

²⁰ WRC, 2013, Minimum flow recommendations for the Wellington region

²¹ WRC, 2013, Minimum flow recommendations for the Wellington region, Appendix 5 Peer Review comments

²² WRC, 2013, Minimum flow recommendations for the Wellington region

²³ WRC, 2013, Minimum flow recommendations for the Wellington region

²⁴ WRC, 2013, draft Minimum flow and allocation recommendations

²⁵ Statement of Evidence of Mike Thompson, para 6.6

A set of criteria based on a combination of lake level, trend in lake level, and stream inflow conditions is an alternative approach that is more targeted towards periods of genuine water stress²⁶. FFNZ support this more sophisticated approach.

106 WRC acknowledge the desirability of a more dynamic and adaptive approach²⁷:

- *“By having a single ‘static’ set of recommended limits that are primarily focussed on sustainability of use during times of water stress, there is potential for water to be ‘locked up’ at other times”*
- *“A related consideration is that ongoing confidence in the limits is partly based on an assumption that near-future climate and hydrological variability will be similar to the period of assessment... The only meaningful way to address climate stationarity is to conduct periodic reviews and update the technical information...and (adjust) the allocation regime accordingly”*
- *More dynamic approaches to allocation are desirable but require much more technical support and administration to provide users with certainty about security of supply, while making sure the appropriate effects triggers are in place.*

107 WRC acknowledge that groundwater categories are coarse: *“Groundwater categories (A,B,C) have been defined to broadly characterise discrete hydrogeological units. They will not capture all of the heterogeneity within these units...discretion from GWRC will be required to ensure that ...users are not unfairly treated as a result of any coarse scale anomalies”²⁸.*

108 WRC acknowledge the need for better data on in-stream values²⁹: *“It is important that GWRC continues to refine its flow setting methodology over time to maintain best practice. A key point is that robust assessments depend on good information about species...unfortunately there is generally very little such information on native fish abundance in Wellington rivers. Future flow assessments should consider the merits of including specific fish monitoring data”.*

109 FFNZ agree with the limitations stated by WRC; agree with the need for improved data, including for native fish; agree on the need for more dynamic management; and agree on the importance of providing for ongoing review and update of the technical work underpinning the water management framework. All these agreements are material to FFNZ relief.

²⁶ WRC, 2015, Lake Wairarapa Water Balance Investigation

²⁷ WRC, 2015, Allocation recommendations for the Wellington region, Appendix 3

²⁸ WRC, 2015, Allocation recommendations for the Wellington region, Appendix 3

²⁹ WRC, 2013, Minimum flow recommendations for the Wellington region

110 The key point of disagreement is the rationale for replacing operative RFP allocations. In our opinion, the case has not been made that this is an effective and efficient approach in the context that WRC describe the “issue” as confined to “some” rivers (Waiohine and perhaps Otaki and Mangaone); the management framework only gives partial respect to the requirement to examine the balance across all values; and the default approach will be overtaken by whitua processes within the short-term.

111 WRC evidence on the rationale for proceeding with an “interim” regime is that: *“Until the (fuller discussion about values occurs in the whitua), the intent in the pNRP is to establish an allocation framework that is more consistent with contemporary planning requirements to...be ecologically precautionary”*³⁰.

112 FFNZ is unclear of the source for this “contemporary planning requirement”. It is not our understanding that the pNRP planning framework – including recent changes to the RMA, recent changes to the NPS-FW, and the recently operative RPS – set out this requirement. Our understanding is rather that the contemporary focus is on respecting and supporting all values, including respecting existing investments and enabling productive uses.

113 FFNZ reiterates discussion on this point by the Parliamentary Commissioner for the Environment³¹ (our emphasis): *“In discussions on contested environmental issues...it is not unusual to hear appeals to the precautionary principle...In 1992, the Rio Declaration defined the precautionary principle as: “Where there are threats of serious or irreversible damage lack of full scientific uncertainty shall not be used as reason to postpone cost-effective measures”.*

114 On our reading, the reference to “contemporary planning requirements” may perhaps relate to two documents referenced in the WRC evidence: Hayes et al 2016 and Hayes et al *In Review*.³² The second document has not been published and is not available for submitter review. We briefly make the point this is not helpful process.

115 The first document has been published, and FFNZ does not agree with the summary presented in WRC evidence³³: *“There is a gathering body of evidence that suggests basing minimum flows on hydraulic survey data alone may run more of a risk of under-estimating actual fish flow*

³⁰ Statement of Evidence of Mike Thompson, para 6.6

³¹ PCE, 2017, Taonga of an island nation – saving NZs birds

³² Statement of Evidence of Mike Thompson, para 5.43

³³ Statement of Evidence of Mike Thompson, para 5.43

requirements than previously thought, particularly in relatively large rivers such as the Ruamahanga with high value drift feeding populations. While this research cannot yet be applied to the Ruamahanga, it signals in my view, a need to be very cautious about reducing minimum flows”.

116 Our understanding of Hayes et al 2016³⁴ is that it suggested we need to think about fish food (invertebrates) as well as fish habitat; and prototyped a methodology (which relied on a number of simplifying assumptions) for testing this thesis on trout in the mid-Mataura River. In essence, as we understand the work: if there is less flow, less invertebrates may be dislodged, and less may float by for drift-feeding. The model has not been validated, and the authors declare various caveats and uncertainties and recommend further work.

117 Setting aside for the moment whether this piece of work justifies a region-wide default allocation regime, in our view, the key points made in Hayes et al are: firstly, that flow is one of multiple factors which may impact on fish populations (alongside substrate, cover, clarity, competition, temperature, floods etc); secondly, that any model predictions should not be treated as absolutes; and thirdly, that models are best used to identify a range of flows.

118 This last point is exactly our point: FFNZ expect that whitua will debate a range of flows, fully informed by all the values and the best available whitua-specific evidence, and land their recommendations accordingly.

119 It is also our understanding that this is in accord with contemporary thinking on water planning. The following extracts are from a recent NIWA/Aqualinc report (our emphasis):³⁵

- *“We have shown that environmental flows are only one component of defining limits, and that socio-political decisions must ultimately determine how the balance between environmental protection and resource use will be struck”*
- *“We argue that setting limits involves balancing different sets of values and that, to establish the legitimacy of resulting management actions and regulatory criteria, the trade-offs need to be transparent”*
- *“Transparency is facilitated by objectives that clearly communicate the chosen level of protection for environmental values, and the availability and reliability of water for out-of-channel uses”*

³⁴ Hayes et al, 2016, Can WUA correctly predict the flow requirements of drift feeding trout?

³⁵ Snelder et al, The role of science in setting resource use limits *in* Hydrological Science for Environmental Flows, downloaded 15/4/2013

- *“The role of scientific tools is to suggest options for objectives...the range of limits and their consequences represent a decision-space”.*

120 **In summary:** FFNZ do not support replacing operative RFP river and groundwater allocations with default allocations. FFNZ do concur with pNRP default allocations for (those few) rivers and streams which do not currently have RFP allocations.

121 **Otaki River:** the s42A report recommends that allocation amounts for the Otaki River (and Mangaone Stream) are reduced (para 251); apparently over and above the “default” formula. This recommendation is made without reference to scope.

122 Our understanding is that – whereas application of the default formula to most rivers will have the effect of “deeming” them to be fully or over allocated – Otaki is sufficiently under allocated that there will still be plenty of water available for new uses.

123 The effect of reduced allocation would be that any new users are unlikely to be granted resource consent (para 249).

124 There is no analysis in the s32AA report of the risks of acting or not acting; and FFNZ is not aware of any other work analysing the opportunities and benefits for the Kapiti community and economy of using more of the water that is currently available.

125 The recommendation derives from WRC evidence³⁶ that the existing minimum flow for the Otaki River was found to be *“too low”* to sufficiently protect the habitat of trout (para 5.8), ie, the same finding as for the Waiohine River.

126 Having said that – as for Waiohine - WRC recognise the whitua process is the *“best forum in which to more thoroughly consider minimum flow options and justification for change”* (5.10). FFNZ agree.

127 WRC evidence notes that, given low levels of allocation (less than 20%), the lack of an *“effective”* minimum flow is *“inconsequential”* (para 5.37).

³⁶ Statement of Evidence of Mike Thompson

128 However, WRC evidence goes on to record concern that – if core allocation is more fully taken up over coming years – then the “*ecological risks*” could increase “*significantly*” (para 5.37).

129 This concern derives from an earlier WRC report³⁷ which reported inter alia (our emphasis):

- “*Due to having its headwaters deep in the Tararua Range, and a large catchment area, the Otaki River is generally not subject to prolonged extreme low flows*”
- “*Preserving the natural flow regime of the river is likely to be of more importance to maintaining general ecosystem condition than low flows*”
- “*Native fish generally have much lower depth requirements than trout and are not likely to experience movement restrictions at any natural occurring low flows*”
- “*The modelling showed that...habitat for trout is predicted to increase with flow. In contrast, habitat for native species tended to decrease as flow increased above MALF*”.

130 The report went on to look in more detail at trout (our emphasis):

- “*F&G angler survey data indicates an average of about 580 “angler days” are spent on the river each year*”³⁸
- “*While the amount of habitat retention that is deemed appropriate for the Otaki River has not been formally defined, there is a good case for 90% habitat retention based on angler values*”
- “*A minimum flow of 4,120L/s is required to achieve 90% habitat retention, using brown trout as the indicator. This reduces to 3025L/s if 70% is desired*”
- “*Results from this assessment indicate that the existing RFP minimum flow of 2550L/s is too low and should be increased to 4120L/s*”.

131 FFNZ do not agree that – if there are 580 fishing trips to the Otaki River per annum – there is therefore a “*good case*” for x flow regime.

132 FFNZ do not agree that trout are appropriately used as a “*surrogate*” for indigenous species. These are two distinctly different value sets which should properly be discriminated and considered, each on their own merits.

133 FFNZ do not agree that reducing allocation to provide for x% of modelled flow preference for trout can be described as an “*ecological risk*” that otherwise could increase “*significantly*”.

³⁷ WRC, 2011, Otaki River instream values and minimum flow assessment

³⁸ For comparison, the Hutt River is around 5000, noting that a visit is recorded as an “angler day”

134 For clarity: FFNZ acknowledge that trout is one of the recreational values of water, and merits consideration alongside other values. We do not agree that trout should “trump” other values; or that any one value should trump another without benefit of explicit analysis. We expect that process to be worked through in the Kapiti whitua.

135 **In summary:** FFNZ do not agree with the Officer recommendation to reduce allocation on the Otaki River (and Mangaone Stream), including for reasons of lack of scope and s32AA analysis.

136 **Prohibited or non-complying status:** FFNZ relief sought that Rule R.R3 (taking of water that exceeds minimum flows or allocation) be non-complying rather than prohibited.

137 Our intent is to provide a small measure of flexibility for applicants to commission work testing our understanding of groundwater/surface water connects and/or water availability. Such work may serve to confirm or disconfirm current hydro-geological understanding: either way, there is a value in this to Council and community, in addition to any benefits for the consent applicant.

138 In our view, non-complying is a high bar (it is certainly a very high financial bar) but it does leave the door ajar (as distinct from prohibited which effectively locks it).

139 The s42A report recommends rejecting FFNZ relief: *“my concern with changing Rule R,R3 from prohibited to non-complying is (it) has the potential to provide a pathway for other takes and uses to be considered (other than water races) and potentially granted”* (para 285).

140 FFNZ agree – that is precisely our purpose.

141 Further, we had understood (as noted earlier) that the Reporting Officer anticipates that the groundwater model and conjunctive framework can be tested by both existing and new applicants.

142 The s42A report discusses FFNZ relief in the context of an apparent oversight in relation to the water races – as the pNRP stands, they would be prohibited during low flows.

143 As noted above, the Officer considers but rejects the option of non-complying status to get around the difficulty for the water races.

144 Instead, the Officer proposes adding water races to the list of exemptions from minimum flow restrictions in Rule R-R1, ie: “*water races for the purpose of supplying water for the health needs of people and animal drinking water*”.

145 FFNZ support the intent to provide for water races and for stock drinking water.

146 We query the reference to “*human health needs*”; and suggest the implications of the proposed new clause need further consideration. For example, it is our understanding that a certain flow is required simply to move water from one end to the other (and that one or two small businesses may currently take small amounts of water).

147 In our view, the key point regarding water races is that they are complex; and the pNRP sets out a method for future full consideration.

148 FFNZ suggests the straightforward option in the interim is simply to provide for water races, ie: “*water races ~~for the purpose of supplying water for the health needs of people and animal drinking water~~*”.

149 **In summary:** the water race issue is distinct from the FFNZ recommendation. We reiterate FFNZ relief sought for non-complying status for Rule R.R3 (and the other whitua rules).

New Schedule

150 The s42A report recommends a new schedule, ie, information required for the reclassification of a groundwater take category.

151 FFNZ acknowledge that the schedule is proposed in part to improve certainty. The schedule includes a long list of matters which in total might amount to clear hydro-geological evidence for re-classification. We briefly make the point that this is an expensive list, likely to deter many or most consent holders.

152 We return to the point raised at the pre-hearing meetings, ie, that in our view, this is an inefficient approach to testing and improving the models which underpin the management framework.

153 We note that the pNRP categorises “sub-catchments” (surface water and groundwater zones) as a unit of management. We support the suggestion that the pNRP would usefully include

illustrative maps. Further, it is our understanding that WRC hold relevant information at this sub-catchment scale, eg, as noted in WRC evidence³⁹: *“The groundwater investigation also had a particular focus on the quantification of sub-regional or sub-catchment water balances – groundwater flows, rainfall recharge, soil moisture balances, exchanges between surface water and groundwater and groundwater abstractions”*.

154 To our knowledge, this information has not yet been collated and synthesised at sub-catchment scale; and made available for sub-catchment communities, eg, to assist in assessing whether to proceed with reclassification applications, or to support community understanding and active engagement with initiatives such as flow sharing.

155 FFNZ suggest this proposed new schedule could be restructured, perhaps in three parts, eg:

- **WRC information:** advising where sub-catchment information is held and how it can be accessed and indicating areas where there is currently more or less uncertainty
- **Applicant information:** setting out requirements
- **Process information,** eg, how new information may be used to adjust management settings.

Methods

156 FFNZ concur with the recommended amendment to M18 which in small part addresses FFNZ relief sought for more active council-community partnerships:

M18: Wellington Regional Council will work in partnership with water user groups to:

- a) support water user groups, or voluntary agreements between water users, to share takes and manage allocations, and
- b) support water user groups to assist with water sharing during times of restrictions or when the catchment is fully allocated, and
- c) provide, where available, accurate technical information to assist user groups.

157 FFNZ do not agree that the small amendment above addresses the more substantive issues raised in the FFNZ submission, and at pre-hearing meetings as outlined above.

³⁹ Statement of Evidence of Dr Mark Gyopari, para 17.6

158 In our opinion, the proposed new schedule above usefully highlights the desirability of a new pNRP method which could, inter alia, prioritise identified research and monitoring gaps or uncertainties; and serve as a forum for regular multi-stakeholder review of the assumptions and data underpinning the current classification system.

159 FFNZ relief includes amendments to notified policies and recommended new policies, which are presented in some detail and intended to identify and prioritise areas for active investigations.

160 FFNZ supports Method M10 Water Quality Investigations and Remediation Actions, ie, WRC will further investigate effects, establish or confirm causality and develop appropriate remediation programmes for identified priority areas.

161 Currently, the pNRP does not include a twin method for water quantity investigations. In our view, a straightforward relief could be a new method to this effect, consistent with relief sought in the FFNZ submission for amendments to P107 and for New Policy – Research and Monitoring.

162 Such a method could provide for ongoing, active investigations in identified priority areas; regular formal review and updating of data and assumptions in the models underpinning water management frameworks; and consequential review of policies and rules as necessary.

163 As for M10, a new method could also provide for prioritised investigations to support whitua deliberations, eg, to the extent the “default” methodology is intended to “alert” whitua of catchments which merit scrutiny, this method could provide for assessment of permitted takes in those catchments.

164 The effect of such a method would be to explicitly provide for an adaptive management approach through the life of the plan. WRC evidence⁴⁰ references Vince Bidwell (2003) noting the need for an integrated approach to considering abstraction effects. This reference derives from work commissioned by MAF to develop tools to support adaptive management⁴¹:

- *“An adaptive management approach to groundwater management is required in a context of imperfect but developing knowledge of the resource”*

⁴⁰ Evidence of Brydon Hughes, Form and content of the proposed conjunctive management framework.

⁴¹ MAF Technical Paper 2003/06, Groundwater Management Tools

- *“The emphasis is on cooperative management by stakeholders who need to understand the reasoning behind the possible range of outcomes”*
- *The role of models is seen as expressing the collective understanding of the participants about how the groundwater system operates, assessing the uncertainties, and predicting the effect of various management actions”.*

165 It is our understanding that WRC intend ongoing review and update, but currently the pNRP provisions do not provide for a method or forum for ongoing multi-stakeholder discussions in the context of new information; nor for clarity on the process for updating pNRP provisions in the light of new information.

166 FFNZ would welcome the opportunity to contribute to drafting a new method to that or similar effect.

167 **Supplementary allocation:** as noted earlier, only 2% of surface water is taken at higher or supplementary flows; and only 1% is supplied from storage.

168 FFNZ seek that the pNRP provide an enabling framework for the taking of supplementary flows and for storage, both in the lowlands and in the hill country.

169 As set out in the FFNZ statement to Hearing Stream Two, the benefits of enabling farm storage include reducing the effects of stock access to waterways; potentially achieving a similar result as fencing but at less cost.

170 FFNZ do not agree with the Officer recommendation to change Policy P117, ie, for rivers with mean flows <5 m³/sec, up to 10% (rather than 50%) of the total flow in the river is available for supplementary allocation.

171 The Officer recommendation relies on analysis presented in WRC evidence⁴² responding to submitter recommendations for all supplementary takes to be restricted to 10%, rather than 50% as notified.

⁴² Statement of Evidence of Mike Thompson

172 The analysis (para 7.10-7.15) was undertaken on “*contrasting*” rivers: Waiohine River (mean flow at Gorge 25,000 L/s) and Papawai Stream (mean flow upstream of Tilsons 300 L/s), selecting the 2012/13 year, and assuming supplementary water is harvested above median and on flow recessions (not peak flows which may carry sediment).

173 The analysis found that, on the Waiohine, the median reduction in daily flow was 16% (maximum 33%). The Officer interpretation is that this is “*reasonably minor*” and the 50% cap would not compromise the values described in the Fish and Game and Rangitane submissions.

174 For the Papawai stream, the median reduction in daily flow was also 16% (maximum 44%). The Officer interpretation is that this is “*quite significant*”; and his recommendation is to introduce a smaller cap (10%) for all rivers with mean flow rates under 5000 L/s.

175 FFNZ is not currently clear on the reasons for determining one to be “*reasonably minor*” and the other to be “*quite significant*”.

176 FFNZ is however clear that the effect of this proposed amendment would be to fundamentally undermine the RPS and pNRP intent to promote and enable water storage.

177 It is our understanding that WRC intent was not to inadvertently compromise storage opportunities; but, in our opinion, the initial analysis is limited, eg, the year selected for analysis, 2012/13, was a drought year. We suggest a more complete analysis would include several years of data.

178 More importantly, a key question is how many and which of the regions rivers have mean flows <5000 L/s. The WRC evidence does not present details but the following table illustrates other rivers which may be captured under the proposed 10% cap. This table is indicative but not complete using mean flow data from an earlier WRC report (data only available for some rivers)⁴³:

⁴³ WRC, 2014, Minimum Flow recommendations for the Wellington region, Appendix 3

| Mean Flow <500 L/s | Mean Flow <1000 L/s | Mean Flow <5000 L/s |
|--|--|---|
| Papawai (300) Mangaone (300) Otakura (500) | Parkvale (800) Waitohu (800) Wainuiomata (900) | Mangatarere (1800) Orongorongo (2000) Kopuaranga (2600) Waipoua (3500) Waikanae (4800) Booths Creek (<5000) Huangarua (<5000) |

179 One implication of this table is that there are a lot of rivers between Papawai Stream and the proposed cap.

180 A question arises regarding the point at which mean flow is measured, eg, high in the catchment (generally smaller flows) or lower in the catchment (generally fuller flows).

181 Another question arising is the extent to which the analysis for Papawai (a springfed stream at the low end of the spectrum) is appropriately extrapolated to all the other rivers captured by the proposed new restriction.

182 Given that the median change in flow for both Papawai and Waiohine was 16%, we might speculate a similar outcome for all the rivers in between.

183 The next question arising is the costs and benefits of taking up to 50% of supplementary flows for perhaps an average of 16% reduction in median daily flows.

184 As noted in the WRC evidence (para 7.11) *“there would be no influence on the median flow, or the low flow regime... nor any reduction in the frequency or magnitude of flushing flows”*.

185 This brings us to perhaps the most important point: no consideration is given to the values supported by supplementary takes, either in the WRC evidence or in the s42A report.

186 The s32AA table simply records that: *“the recommended amendment to P117 provides a greater degree of protection to smaller rivers and streams...will increase the effectiveness of the proposed plan (and) would not alter the meaning or any outcome of the proposed plan”*.

187 In our opinion, it is surprising that no further attention was given to Papawai, especially given the difference in results for Papawai and Waiohine is fairly muted. It is our understanding that water in this catchment supports a significant horticultural export enterprise, with associated social, economic and employment benefits. It is also our understanding that the proposed “default” allocation formula has the effect of deeming this catchment to be heavily over-allocated in respect of core allocation. This new proposal would have the effect of also restricting supplementary allocation to 10%. At minimum, FFNZ expect more rigorous cost/benefit assessment across the full range of uses and values of water in this catchment.

188 More broadly, in our opinion, the effect would be to significantly compromise water harvesting and storage opportunities in catchments throughout the region, significantly at odds with RPS policies and pNRP intent.

189 In our opinion, the effect may be to put many farmers in a “catch-22” situation: unable to respond to increased water take restrictions by investing in storage, and potentially unable to invest in water storage/reticulation systems to reduce effects of stock access to waterways.

190 **In summary:** FFNZ do not agree with the s42A recommendation to restrict supplementary takes to 10% for rivers with mean flow <5000L/s. This proposal should not proceed without further more detailed analysis of all rivers captured within this cap, analysis of the costs and benefits, and more careful assessment against RPS and pNRP objectives and policies. Pending any such further work, FFNZ seek that the 50% cap be retained for all rivers (FFNZ relief in blue):

P117: In addition to core allocation, supplementary allocation water is available from rivers at flows above median flow in the following amounts:

a) For rivers with mean flows of greater than 5m³/sec, up to 50% of the flow in the river above the median flow, or

b) For rivers with mean flows of less than or equal to 5m³/sec, up to 10% of the total amount of flow in the river, provided flushing flows and a portion of flow above the median

flow remains in the river to meet Objective O25.

Rules

191 **Rule 137:** FFNZ concur with the Officer recommendation on condition (d). FFNZ do not agree with the Officer recommendation to reject FFNZ relief on condition (b) and (g). In our opinion, these conditions are not proportionate to the scale of any issues or risks documented in either the s42A report or the s32 report. To the extent particular catchments may merit closer scrutiny of permitted and controlled takes, that would appropriately be signalled in the pNRP (eg, in the proposed new method as above), and investigative work undertaken to support whitua consideration.

192 FFNZ relief is re-stated in blue below:

R137: The take and use of water from a **surface water body** (other than a **water race** that is permitted by Rule R138) or groundwater for the purpose of farm dairy washdown and milk cooling on a dairy milking platform is a permitted activity, provided the following conditions are met:

- (a) the take shall be for a single **property**, and
- (b) the total take shall be no more than 70L per day per ~~head stock unit~~ based on the maximum herd size on the **property** ~~at any time during the three years prior to the date of public notification of the Proposed Natural Resources Plan (31.07.2015)~~, and
- (c) the take of groundwater does not adversely affect reliability of supply from properly constructed, efficient and fully functioning nearby **bores**, and
- (d) ~~where the take and use is from surface water body, a fish screen with a minimum mesh size of 3mm shall be installed to prevent fish entering the intake fish are prevented from entering the water intake~~, and
- (e) the water is not taken from a natural wetland, or from within 50m of a natural wetland, and
- (f) all practicable measures for recycling of uncontaminated ~~washdown milk-cooling~~⁴⁴ water are implemented, and
- ~~(g) at the written request of the Wellington Regional Council a water meter is installed and daily water use records are kept and provided to the Wellington Regional Council.~~

⁴⁴ Section 42A officers report: Water allocation, Issue 2.6

193 **New rule:** FFNZ agree with the Officer recommendation for a new PA rule (para 376), providing for the take and use of water from a storage facility. We understand the intent with the proposed condition - *provided the water to fill the storage facility was authorised by a consent or Rule R136* - but seek clarification that water used from farm dams filled from run-off would not require consent.

194 **Schedule Q** – reasonable and efficient use criteria: FFNZ agree on the value of ongoing efforts by all sectors to improve efficient use. We do not agree however, that efficiency should be “maximised” at the expense of other considerations and FFNZ relief is intended to provide for a more “rounded” assessment. The s42A report recommends no change to the schedule. We restate key elements of FFNZ relief in blue below:

- Irrigation: A resource consent application to take water for irrigation purposes shall include an assessment using a field validated model that considers land use, crop water use requirements, on-site physical factors such as soil water holding capacity, and climatic factors such as rainfall variability and potential evapo-transpiration. The model must reliably predict annual irrigation volume within an accuracy of 15%. The annual volume calculated using the model shall meet with the following criteria:
 - A) an irrigation application efficiency of 80%, and
 - B) demand conditions that occur in nine out of 10 years.

- Reasonable and efficient use shall be assessed taking into account
 - A) Results of the field-validated model; and
 - B) Efficiency of use of existing investment; and
 - C) The needs of all users for reliability of supply, and the needs of some crops for higher reliability; and
 - D) Industry benchmarks for reasonable and efficient use

Whaitua Chapters

195 As outlined above, FFNZ concur with the use of default formula for those (few) catchments not included in the RFP. Briefly recapping FFNZ relief sought, with reference to Ruamahanga table numbers (but applicable to other whaitua):

- **Table 7.1 Minimum flows:** state operative RFP minimum flows; use default formula for additions
- **Table 7.2 Minimum lake levels:** FFNZ agree with the triggers (third column)
- **Table 7.3 & 7.4 Surface water allocation:** state operative RFP allocations; use default formula for additions
- **Table 7.5 Groundwater allocation:** state operative RFP allocations; use default formula for additions

196 FFNZ agree with Policy R.P2, intended to provide that allocation is the greater of the total amount allocated, or the allocation amount identified in the tables. Our relief seeks retention of operative RFP allocations where these are available. In our view, the key point is that the real distinction in this policy is between RFP allocations and the proposed new default formula, which may have the effect of “deeming” some catchments to be “over” allocated. FFNZ make the point this is an artefact of the methodology, intended as an interim measure and as a signal to whaitua of catchments where closer consideration is warranted.

197 FFNZ concur with the proposed restrictions – but not cease takes – for groundwater takes. A very early draft iteration of the pNRP proposed full cease take restrictions, which were then subject to analysis of implications as part of the plan development process. FFNZ agree this analysis showed severe implications for reliability of supply for out-of-stream values. FFNZ agree that any further attention properly belongs in the whaitua, properly informed by consideration of all values – instream and out-of-stream.

198 **Figure 7.1** highlights the relatively skinny network of low flow monitoring points, and especially the absence of low flow monitoring for a very long stretch of mainstem Ruamahanga below Waihenga. FFNZ restates relief sought for an expanded network, with at minimum an additional site below Waihenga.

199 The s42A report states that, for rivers in the Wairarapa Coast and Porirua whitua, taking water is a discretionary activity, rather than restricted discretionary as in the other whitua. No explanation is provided in the s42A report (para 368), or in the s32 report (page 43).

200 FFNZ relief sought in relation to Ruamahanga Whitua applies also to the other whitua. We note that the farming sectors in Porirua and Wairarapa Coast (mostly hill country drystock) are not big water users, but - as emphasised here and in Hearing Stream Two – FFNZ seeks an enabling framework for farm storage, including to support reducing effects of stock access to waterways.

201 FFNZ relief seeks that **Rule P.R1 and WC.R1** be restricted discretionary, consistent with the other whitua.

S42A REPORT – NATURAL FORM & FUNCTION

Outstanding & Special Landscapes

202 The RPS sets the context for provisions relating to “outstanding” and “special” landscapes.

203 FFNZ note that WRC have not as yet identified these landscapes within their jurisdiction; but we agree with M24.

204 FFNZ relief seeks small amendments to provisions, consistent with the RPS:

O32: [The values of⁴⁵](#) Outstanding natural features and landscapes are protected from inappropriate use and development.

O38: [The values of⁴⁶](#) Identified special amenity landscape values are maintained or enhanced

M24: WRC will work with city and district councils and the community to:

- a) identify outstanding natural features and landscapes within the region, and
- b) identify areas with outstanding/high natural character in the coastal environment, and
- c) produce a regional list of these features, landscapes and areas by 2017 for [consultation with landowners prior to⁴⁷](#) inclusion in the Plan by plan change or variation.

⁴⁵ RPS Objective 17

⁴⁶ RPS Objective 18

⁴⁷ RPS Methods M7, M32

Coastal Environment

205 The RPS sets the context for the coastal environment (giving effect to the NZCPS), ie, RPS Objectives 3, 4, 4, and 7.

206 The s42A report (para 126) refers to RPS coastal policies (3, 35, 36); and seeks to extend them to non-coastal environments through a line in the preamble to RPS Chapter 3 Indigenous Ecosystems, ie: *“As well as contributing to the regions natural character, healthy ecosystems...”*.

207 FFNZ broadly agree that indigenous elements – alongside introduced elements – contribute to “natural character”; and agree with the Reporting Officer (para 167) that this is expressed on *“a continuum from pristine through to modified”*.

208 FFNZ is not currently aware of any more detailed description or discussion of issues relating to “natural character” or “natural process” outside of the coastal environment in this region.

209 We reiterate our earlier reference to guidance from MfE, ie, *“the degree of clarity about the problem will influence the type and range of policy solutions considered, and the quality of analysis of the options”*.

210 FFNZ do not agree that the somewhat tenuous link between RPS coastal policies and a line in the preamble in another chapter supports the s42A recommendation (para 122) that the NZCPS hierarchy be adopted across the board in non-coastal environments.

211 FFNZ is not clear on the intent or practical application of a definition of natural process which includes *“river meandering”*, linked to an objective directing that *“natural processes are retained”*, particularly in the context that the “issue” intended to be resolved by these provisions has not been well described.

212 For example: what does this mean for flood management activities? Is the *“natural process”* intended to mean returning to some pre-human point (let the river wander?) or retaining the current state, modified as it may be? A similar question might be posed about natural processes and character in relation to introduced aquatic fauna and flora.

213 For clarity: FFNZ supports the elaboration and discussion of the full range of values, including landscape and amenity values. Our concern is that relatively ill-defined concepts – with relatively limited statutory context - might be introduced in objectives and policies, and subsequently become “hurdles” at lower levels of pNRP administration, without benefit of clear community process and agreements.

214 As outlined in earlier hearing streams, FFNZ support full expression of the full range of values: in our opinion, this gives us the best platform for finding agreements and moving forward. Two brief illustrations might be Kourarau Dam (discussed in HS1 and HS2); and the evidence presented to HS3 in relation to geological features in the coastal area, ie, high quality process and information to support understanding and quality engagement.

215 FFNZ do not agree that the provisions recommended in the s42A report are an efficient and effective approach to the RPS (which gives effect to the higher order NZCPS).

216 FFNZ relief is highlighted in blue below against the red-line recommendations, distinguishing those provisions giving effect to coastal provisions in the RPS, and other provisions relating to natural character and processes.

Coastal Environment

P25: Use and development shall avoid significant adverse effects on outstanding⁴⁸ natural character in the coastal marine area ~~(including high natural character in the coastal marine area)~~ and in the beds of natural wetlands, lakes and rivers, and avoid, remedy or mitigate other adverse effects of activities on natural character in the coastal marine area, taking into account:

- a) the extent of human-made changes to landforms, vegetation, biophysical elements, natural processes and patterns, and the movement of water, and
- b) the presence or absence of structures and buildings, and
- c) the particular elements, features and experiential values that contribute significantly to the natural character value of the area, and the extent to which they are affected, and
- d) ~~whether it is practicable to protect natural character from inappropriate use and development through:~~

⁴⁸ NZCPS Policy 13

- ~~(i) using an alternative location, or form of development that would be more appropriate to that location, and~~
- (ii) considering the extent to which **functional need** or existing use limits location and development options

e) alternative locations, design or form of development that have less adverse effects, and

f) the extent to which the activity has a functional need to be located in the coastal marine area that limits location and development options, and

g) the ecosystems, natural flow characteristics and hydrodynamic processes, and the natural pattern and range of water level fluctuations in **natural wetlands**, rivers and lake and their margins.

P48: Natural features and landscapes (including seascapes) of the coastal marine area, rivers, lakes and their margins and natural wetlands shall be protected from inappropriate use and development by:

- a) avoiding adverse effects of activities on outstanding natural features and landscapes, and,
- b) avoiding significant adverse effects and avoiding, remedying or mitigating other adverse effects of activities on natural features and landscapes.

P49: ~~Use and development in the coastal marine area on sites adjacent to an outstanding natural feature or landscape or special amenity landscape identified in a district plan shall be managed by: protecting visual and biophysical linkages between the site and the outstanding natural feature or landscape, and avoiding adverse cumulative effects on the values characteristics and qualities of an outstanding natural feature or landscape.~~⁴⁹

⁴⁹ RPS Objective 3

Natural Processes & Character

Definition - Natural Processes: ~~Dynamic natural, physical and ecological relationships and events that are characteristically natural in their occurrence and effects, that act to shape the natural environment, its landforms and features, such as beaches, dunes, wetlands, and rivers; and including processes of: wave formation, breaking and dissipation; swash run-up; nearshore currents; sediment transport, erosion and deposition, flooding, river meandering, aggradation and mass movement.~~

O19: ~~The interference from use and development on natural Natural processes, including natural elements, patterns and ecological processes continue to occur, and the integrity and functioning of natural processes and forms are retained. is minimised.~~

P26: ~~Use and development will be managed to minimise effects on the integrity and functioning of natural processes~~