Minutes for Lake Rotorua Catchment Stakeholders Advisory Group, 18 November 2013

Rotorua District Council – Committee Room 2

1061 Haupapa Street, Rotorua, 1:10 pm start

Chair: Tanira Kingi

Present:

- Te Arawa Lakes Trust: Lana Ngawhika (left 4:00pm)
- LWQS: Don Atkinson (left 3:48pm), Warren Webber (left 3:48pm)
- RDC: Cr Karen Hunt, Paulina Wilhelm (replacing Liam Dagg; left 3:50pm)
- Māori landowners: (see agenda item 5)
- Collective reps: Joanna Carr, Stuart Morrison, Wendy Roe and Hera Naera (2:50pm–3:45pm)
- Small block holders: Darren Florence (on behalf Karl Weaver)
- BOPRC: Cr Neil Oppatt (left 4:00pm), plus staff: Anna Grayling, Sarah Omundsen, Jenny Clarke (Minutes Secretary), Alastair MacCormick, Lisa Power, Warwick Murray
- Others: Simon Park (StAG secretariat); John Fenwick (Waerenga Inc., left 3:25pm); Te Taru White (Pukahukiwi Kaokaoroa, left 2:55pm); Gwyn Morgan; Tony Carr (left 2:45pm); Laurence Tamati (left 2:55pm); Lee Matheson (left 3:10pm).

Action summary

1. Organise forum for scientists to discuss lake science with farmers and others – (9 December, 7pm, Ngongotaha Hall) and send invites (Tanira / Sarah)
2. Communicate to farmers explaining NDA and effective pastoral area concept (including scenario spreadsheet), circulate to StAG subcommittee for agreement prior to posting; needs to be consistent with wider BOPRC engagement plan (Sarah / Anna / Warwick)
3. Circulate draft Communication Engagement plan, for StAG member feedback, followed by workshop for more intensive feedback (Anna)
4. Upload monthly update of Rules & Incentives Work Plan to secure website (Sarah / Jenny)
5. Create monthly summary of StAG activities and upload to secure website (Anna)
6. Draft a sector NDA options report for StAG decision at December meeting, including options on: with/without NDA ranges; NDA range alternatives; include/exclude 'dairy support'; baseline year scenarios; recognising pre-2001 land retirement (Sarah)
7. Draft Principles and Criteria for consent for next StAG (Lisa Power)
8. Circulate summary of RMA consent categories via secure website (Lisa Power)
9. Circulate summary Incentives workshop, held 13 November (Anna Grayling)
10. Circulate summary Overseer workshop, held 15 November (Simon Park)

Item 1: Karakia and welcome (Tanira Kingi)

- Chairman's request; that Agenda and all supporting document are sent in one PDF email, seven days before each meeting

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Item 2: Apologies

- Karl Weaver, Gisele Schweizer, Mark Rawson, Arapeta Tahana, Hera Smith, Neil Heather, Colin Maunder

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Item 3: General business items to add

a. Farm Nutrient Plans, update and who will pay? (Wendy Roe)

b. Update on Minister's meeting (Warwick)

c. MFE Roadshow (update by Sarah)

d. Mitigation prior to Rule 11 benchmarking period of 2001-2004

Item 4: Minutes of previous meeting (22 October 2013)

Discussion on minutes and acceptance:

Motion: Accept minutes of main StAG meeting 22 October 2013 as accurate **Moved Warren/ seconded Joanna / CARRIED**

Discussion on previous Action points:

1. Liaise with Tanira to arrange hui specific to Te Arawa landowners as a follow-up to similar August hui (Anna) – scheduled for 19 November
2. Amend rules work plan by adding a timeline, track % task complete and insert incentive work plan actions (Sarah/Lisa) – refer Agenda item 6c
3. Seek views of Lee Matheson on options, circulate a revised dairy support sector discussion document for StAG discussion – refer Agenda item 7
4. Invite Lee to next StAG to answer questions as the group decide on the preferred option (Sarah) – refer Agenda item 7
5. Circulate Comms and Engagement plan for rules and incentives and consider alignment with key decisions required (Anna) – refer Agenda item 6b
6. StAG members forward any science questions to Anna to pass on to Lakes TAG – no specific questions received
7. Organise forum for scientists to discuss lake science with farmers and others (Warwick's team) – to be held in early December, send invite (Tanira, Jenny)
8. Circulate TLI/N/P data analysis report co-authored by David Hamilton and Tom Stephens, associated with 2012 RPS mediation (Sarah) – done.
9. Contact Iwi members regarding ongoing representation at StAG meetings (Tanira) – refer Agenda item 5

ACTION: Organise forum for scientists to discuss lake science with farmers and others – send invites as soon as date/time/venue confirmed (Tanira / Jenny)

Item 5: Te Arawa representation on StAG (Tanira Kingi)

Tanira informed that there have been resignations from some Te Arawa StAG members. Following discussion at Iwi hui tomorrow, 19 November, replacement of TALT representatives will be confirmed [**post-script**: Te Taru White, Neville Nepia and John Fenwick are the new iwi StAG members].

Item 6: Communications

a. Clarification on using effective pastoral area for NDAs (Sarah Omundsen)

- 100 ha "Square Farm" scenarios, looking at concept of 'effective area'
- Discussion on whole property NDA vs. effective grass area, as some confusion with term "effective hectares". Suggestion to use 'Dairy', 'Drystock' and 'Trees', with corresponding NDAs of 35, 13 and 3 (kgN/ha/yr)
- Suggestion to send a letter to all farmers, clarifying and informing of NDA concept (prior to consultation stage)

ACTION: Draft letter to farmers explaining NDA and effective pastoral area concept (including scenario spreadsheet), circulate to StAG for agreement prior to posting; needs to be considered in context of wider BOPRC engagement work (Sarah / Anna / Warwick)

b. Updating the Lake Rotorua Rules & Incentives Engagement Plan (Anna Grayling)

- Ideas and discussion on methods of communication – important to engage with landowners beyond StAG
- Maintain clarity within engagement plan on which communication actions are linked to RMA and Local Government Act purposes (or neither)
- Suggestion to present summary of StAG activities at Science seminar with David Hamilton later this year – that seminar should be well attended
- Can StAG meeting summaries be posted as Lakes updates, circulated regularly?

ACTION: Circulate draft Communication Engagement plan, for StAG member feedback, followed by workshop for more intensive feedback (Anna)

c. Workplan update (Sarah)

- Monthly updates to go on secure website
- Sarah/Anna to discuss with StAG chair (2 weeks before each StAG meeting i.e. at subcommittee) which work plan updates will be needed

ACTION: Upload monthly update of Workplan to secure website (Sarah / Jenny)

ACTION: Create monthly summary of StAG activities and upload to secure website (Anna)

Item 7: Dairy support advice (Lee Matheson)

Sarah gave the context – does StAG want a separate 'Dairy support sector' NDA?

Lee presented on a possible dairy support NDA with modelled examples of current "standard" and future "mitigated" farms, assessing N loss and gross margin. Refer to Lee's pre-circulated paper for details – some key points were:

- Both scenarios showed large N loss reductions from status quo (37-26) to 20-21 kgN/ha/yr, by lower stocking rate or investment in a wintering barn - the latter's capital cost notably reduced $ gross margin
- Profit per hectare is less than gross margin (latter ignores fixed/overhead costs, including wages of management, rates, insurance etc)
- Allocating additional NDA to dairy farmers unlikely to deliver expected outcomes
- Equity of a dairy support NDA, relative to other drystock land uses, is unclear

Discussion included:

- Farmers want any solution to be fair; should there be an 'Intensive Beef' sector as it can have similar N loss to dairy support and even higher profit?
- Given some correlation between LUC and farm management, should allocation be related to the production potential of land i.e. do we revisit natural capital as an allocation principle? Note 46% of dairy is on LUC 6 i.e. poor alignment between intensive land use (dairy) and better LUC.
- Given 2001-04 benchmark and lack of monitoring, we do not know what performance or system changes have occurred after 2004
- Does our NDA matrix ignore too many factors?

Item 8: NDA ranges:

a. Impact of rainfall and soil type on N loss (Alastair MacCormick)

See attached presentation "Adjusting sector allocations for rainfall and soil"

- Main analysis done with Overseer 5
- Soil and rainfall distribution impacts on N loss for dairy and drystock using hypothetical ("test") future farms for plausible 2032 farm systems.
- Clear soil and rainfall impacts on N loss for the same farm system
- Generated adjusted NDA allocations using soil types and rainfall bands so that equivalent effort would be needed to meet the various NDAs
- Soils/rainfall driven allocation will change with Overseer version changes and user protocols. Different farms systems will give variable percentage changes under different Overseer versions i.e. very complex

b. **Using Rule 11 N loss data to generate potential NDA ranges (Warren Webber)**

See attached presentation "Use of 2001-2004 Benchmark Data to generate NDA sector ranges". Some key points:

- This is a hybrid of "sector averaging" and "grandparenting"
- A drystock 10-20 kgN/ha NDA band still gave a 13 NDA average
- Most NDA adjustments possible with a 25% reduction from BM levels (effective areas only), with <25% adjustment for low BMs and >25% adjustment for high BMs (both dairy and drystock).
- Net sector and total N loss kept the same as for the single pair of NDAs (35 & 13)

Discussion (both 8a and 8b) included:

- Consider the scope to use incentives to address BM outliers, not just NDAs
- Need to understand the causes of BM variation - how much is soil/rainfall, how much farm systems and management? Can Alastair's soils and rainfall analysis be overlaid with BM data spatially i.e. to identify patterns?
- Need to consider options to address land retirement before 2001, notably Kaituna catchment scheme work – does BOPRC have that data (how many hectares)? Note there were farmer benefits to some scheme work, and public subsidies
- Also need to consider changes since 2004
- All land in trees, whether associated with the Kaituna scheme or not, provides "ecosystem services" via low N and P losses.

ACTION: Draft a sector NDA options report for StAG decision at December meeting, including options on: with/without NDA ranges; NDA range alternatives; include/exclude 'dairy support'; baseline year scenarios; recognising pre-2001 land retirement (Sarah)

Item 9: Determining which properties require resource consent and what kind of consent required (see draft discussion paper, Lisa Power)

Lisa Power spoke to discussion paper – some key points:

- Is there was a preferred approach to determine which properties need resource consent? While about 20% of N comes from properties 0.4-40ha, there are >2000 such properties i.e. landowner/bureaucratic logistics
- The consenting approach must ensure we can meet our targets for nitrogen loss
- Consider fairness Vs OSET plan (On-site Effluent Treatment) and its consent rules
- Combination required of principles, practicalities
- Suggestion made that consent processes need to be streamlined, particularly if multiple consents are required for properties
- A possible start point for analysis: Assume everyone needs consent and then reduce by categories of area and N loss per hectare

ACTION: Draft Principles and Criteria for consent for next StAG (Lisa Power)

ACTION: Circulate summary of RMA consent categories via secure website (Lisa Power)

Item 10: Base year for defining land use (deferred from previous meeting)

Sarah will include baseline scenarios in the Sector options paper; e.g. comment on pre-2001 Kaituna catchment scheme works 1980s (see Action above)

Item 11: Workshop summaries

a. 13 November Incentives workshop (Anna Grayling)

ACTION: Circulate summary Incentives workshop, held 13 November (Anna Grayling)

b. 15 November Overseer-RMA workshop (Simon Park)

ACTION: Circulate summary Overseer workshop, held 15 November (Simon Park)

Item 12: General business

a. Farm Nutrient Plans, update and who will pay? (Wendy Roe)
    - Warwick advised the farm plan process/template is being developed with DairyNZ and Beef & Lamb NZ. StAG will receive a report when this has been completed

b. Update on Minister's meeting (Warwick)
    - Minister Amy Adams is supportive of Rotorua's collaborative approach and is seeking more detail on incentives, including the $5.5m "above the line" component.

c. MfE Roadshow (Warwick)
    - This meeting, tonight, will update on: recent changes to the National Policy Statement on Freshwater Management; the work going into establishing the bottom line and how this relates at catchment level.

General business item (mitigation before 2001) noted in items 8b & 10 above.

Meeting closed 4:10 pm

Upcoming meetings:

3 December: Subcommittee (10:00 – 12:00pm), venue BOPRC Rotorua
17 December: StAG (9:00am – 12:00pm) + Subcommittee (12:30 – 2:00pm)

Attachments:

a. Alastair MacCormick's presentation

b. Warren Webber's presentation

c. Summary of Overseer workshop held 15 November

Adjusting sector allocations for rainfall and soil

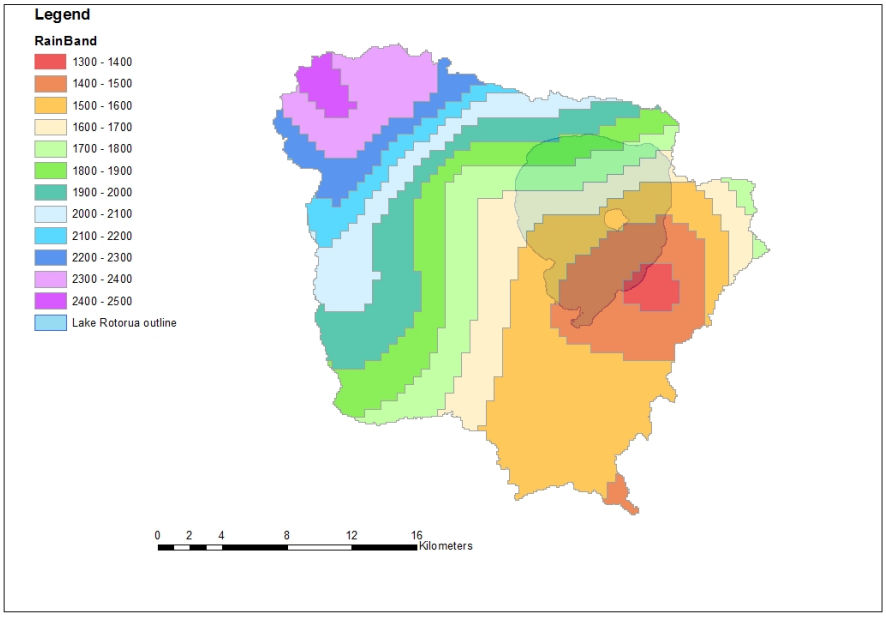
StAG

5 November 2013

(presented by Alastair MacCormick)

Things I will cover….

- Rainfall distribution
- Soil distribution
- Method of adjusting allocations
- What the allocations might look like using Overseer 5 and benchmarked land use sectors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RainBand
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1400 - 1500
1500 - 1600
1600 - 1700
1700 - 1800
1800 - 1900
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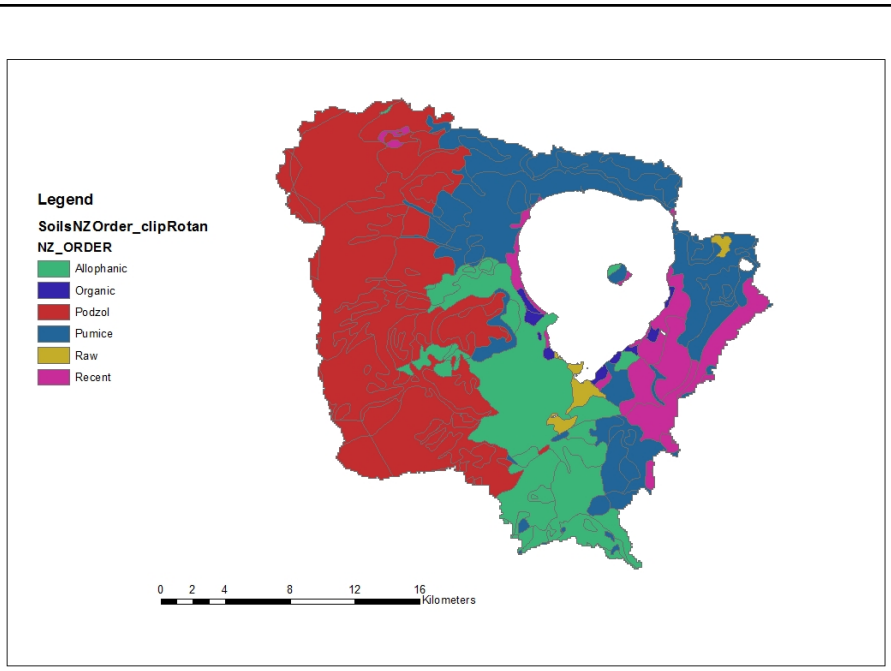
2000 - 2100
2100 - 2200
2200 - 2300
2300 - 2400
2400 - 2500
Lake Rotorua outline
0 2 4 8 12 16
Kilometers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Recent
0 2 4 8 12 16
Kilometers

Dairy – Soil distribution by rainfall

	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	Grand Total
Pumice			1%		3%	10%	8%	5%	1%	3%			31%
Allophanic			11%										11%
Recent	4%	2%											6%
Podzol								13%	13%	11%	12%	2%	52%
Grand Total	4%	2%	12%	0%	3%	10%	8%	18%	15%	14%	12%	2%	100%

Drystock – Soil distribution by rainfall

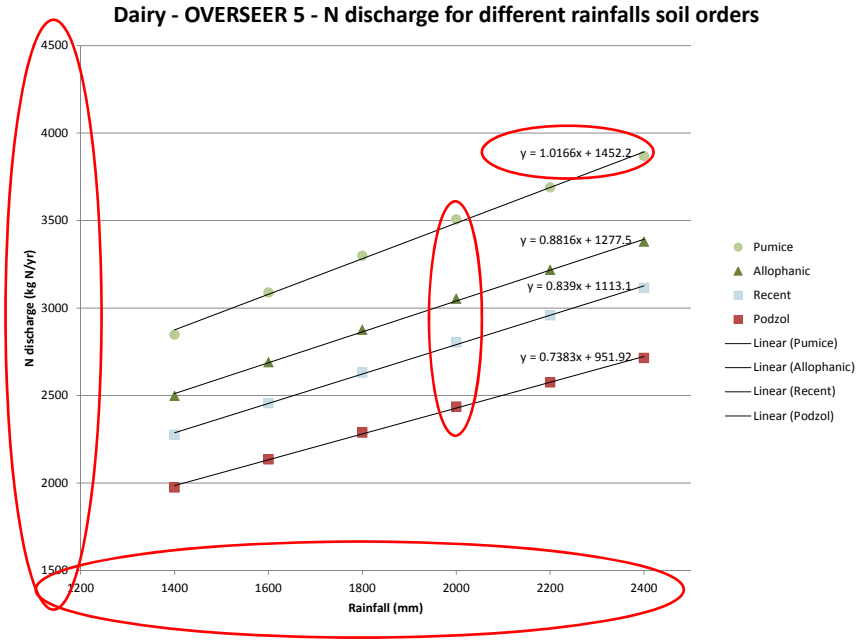
	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	Grand Total
Pumice		4%	4%	4%	5%	4%	7%	4%	1%				33%
Allophanic			7%	7%	3%	2%							19%
Recent	1%	6%	3%	2%									12%
Podzol			1%	5%	5%	7%	6%	4%	2%	3%	3%		35%
Grand Total	1%	10%	15%	17%	13%	13%	13%	8%	3%	3%	3%	0%	100%

Method

- GIS assigned soil and rainfall to land use sectors
- Created a dairy and drystock test file to compare the same system under different soil and rainfall conditions
- Assigned the per Ha discharges to the catchment land use sectors
- Applied a percentage adjustment to meet total sector allocations

Dairy Test File

- 100Ha farm - 60 Ha main, 40 Ha effluent
- 2.4 cows per Ha
- 1200 kg m/s
- 400 tonne imported supplement
- 50 kg N/ha on main
- Pasture production ~ 11000kg/Ha



Dairy – Adjusted N allocations

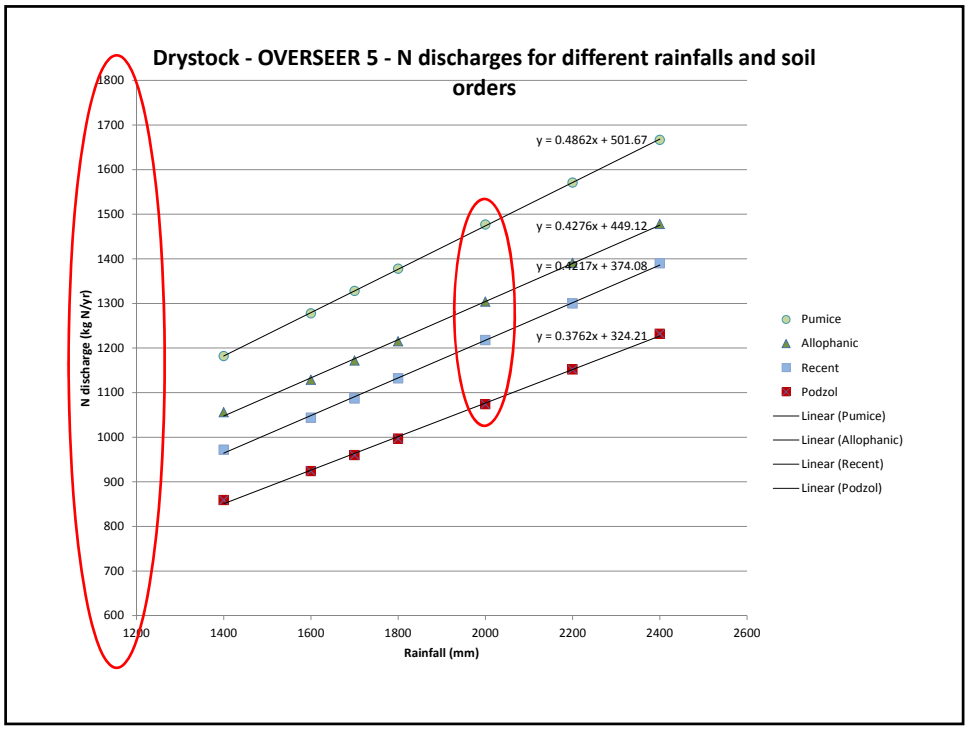
	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450
Pumice	35	36	37	38	40	41	42	43	45	46		
Allophanic			32									
Recent	28	29		31								
Podzol			26				29	30	31	32	33	34

Dairy – adjusted total N discharges

	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	Grand Total
Pumice	105	77	1569	1	5558	21012	16462	11350	2620	7620			**66374**
Allophanic			18002										**18002**
Recent	4958	3238		6									**8202**
Podzol			649				670	19761	21277	18239	20739	2838	**84172**
Grand Total	**5063**	**3314**	**20220**	**7**	**5558**	**21012**	**17132**	**31111**	**23897**	**25858**	**20739**	**2838**	**176749**

Drystock Test File

- 100Ha farm – all effective
- 1254 su (767 sheep, 487 beef)
- Sheep and dairycross steers (7-19 months)
- No N fertiliser
- Pasture production ~ 9790 kg/Ha



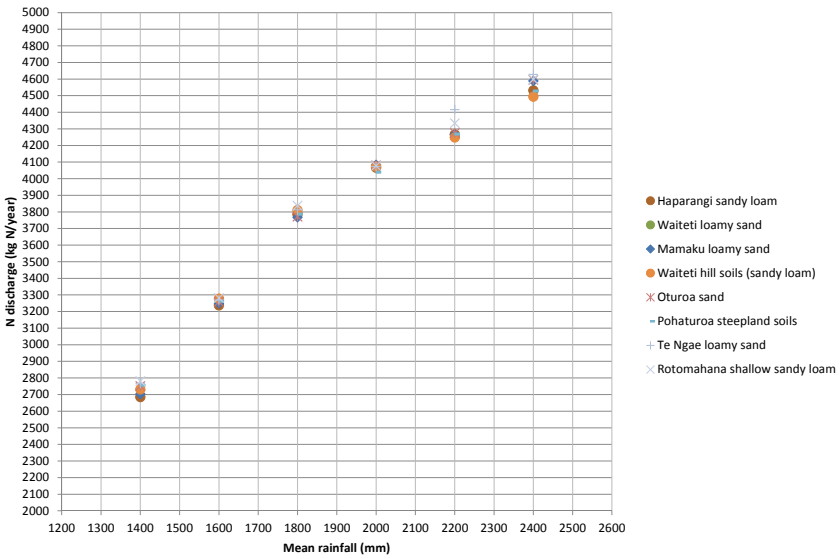
Drystock - Adjusted N allocations												
	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450
Pumice	12	12	13	13	14	14	15	15	16	16		
Allophanic	10	11	11	12	12	12	13					
Recent	9	10	10	11	11	12	12					
Podzol			9	9	10	10	11	11	11	12	12	13

Drystock – Adjusted total N discharges													
	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250	2350	2450	Grand Total
Pumice	4	6033	7637	6807	8944	7541	14152	8813	2811	403			63146
Allophanic	103	596	11049	10544	4530	3492	460						30775
Recent	1394	8675	4235	2652	399	150	23						17527
Podzol			976	5985	6837	10222	8496	6446	2591	5314	4895	40	51802
Grand Total	1501	15304	23898	25988	20710	21406	23131	15259	5402	5716	4895	40	163250

Some things to consider…

- An even allocation under one version of overseer may not be even under another
- User protocols are likely to change
- Complex farm systems may act differently depending on the individual practices on the farm ie all farms systems won't move by the same percentage between Overseer versions
- Complex!!! Version changes, trading, sales and subdivisions will all make it difficult for a farmer to understand why their allocation keeps changing.

	Sum of Area (ha)	% of ROTAN Area
Row Labels	Pastoral (Dairy)	Pastoral (Dairy)
1300 - 1400 mm	182.88	3.6%
1400 - 1500 mm	115.35	2.3%
1500 - 1600 mm	622.04	12.2%
1600 - 1700 mm	0.22	0.0%
1700 - 1800 mm	140.11	2.8%
1800 - 1900 mm	513.55	10.1%
1900 - 2000 mm	413.24	8.1%
2000 - 2100 mm	914.36	18.0%
2100 - 2200 mm	741.22	14.6%
2200 - 2300 mm	734.53	14.4%
2300 - 2400 mm	628.72	12.4%
2400 - 2500 mm	83.74	1.6%
Grand Total	5089.95	100.0%



Allophanic	554.62	10.90%
Well drained		
Haparangi hill soils + Ngakuru hill soils	100.05	1.97%
Haparangi sandy loam	336.27	6.61%
Podzol	2664.48	52.35%
Well drained		
Mamaku hill soils	190.13	3.74%
Mamaku loamy sand	877.11	17.23%
Mangorewa sandy loam	569.12	11.18%
Waiteti hill soils	557.07	10.94%
Waiteti loamy sand	242.06	4.76%
Waiteti loamy sand + Waiteti hill soils	203.77	4.00%
Pumice	1577.58	30.99%
Well drained		
Oropi hill soils	241.59	4.75%
Oropi sand	435.71	8.56%
Oropi sand + Oropi hill soils	197.06	3.87%
Oturoa hill soils	209.21	4.11%
Oturoa sand	373.86	7.35%
Pohaturoa steepland soils	72.78	1.43%
Recent	293.26	5.76%
Imperfectly drained		
Well drained		
Rotomahana shallow sandy loam	205.69	4.04%
Grand Total	5089.95	100.00%

Use of 2001-2004 Benchmark Data to generate NDA sector ranges

Presentation by Warren Webber to StAG 18th November (at request of StAG Subcommittee)

A moment of reflection …

… early preferences were for NDA allocations based on a hybrid of grand-parenting and sector averages

What if …

we established a max. & min. NDA for each of two sectors ?

then …

within that max./min. range we allocated 75% of the 2001-2004 benchmark

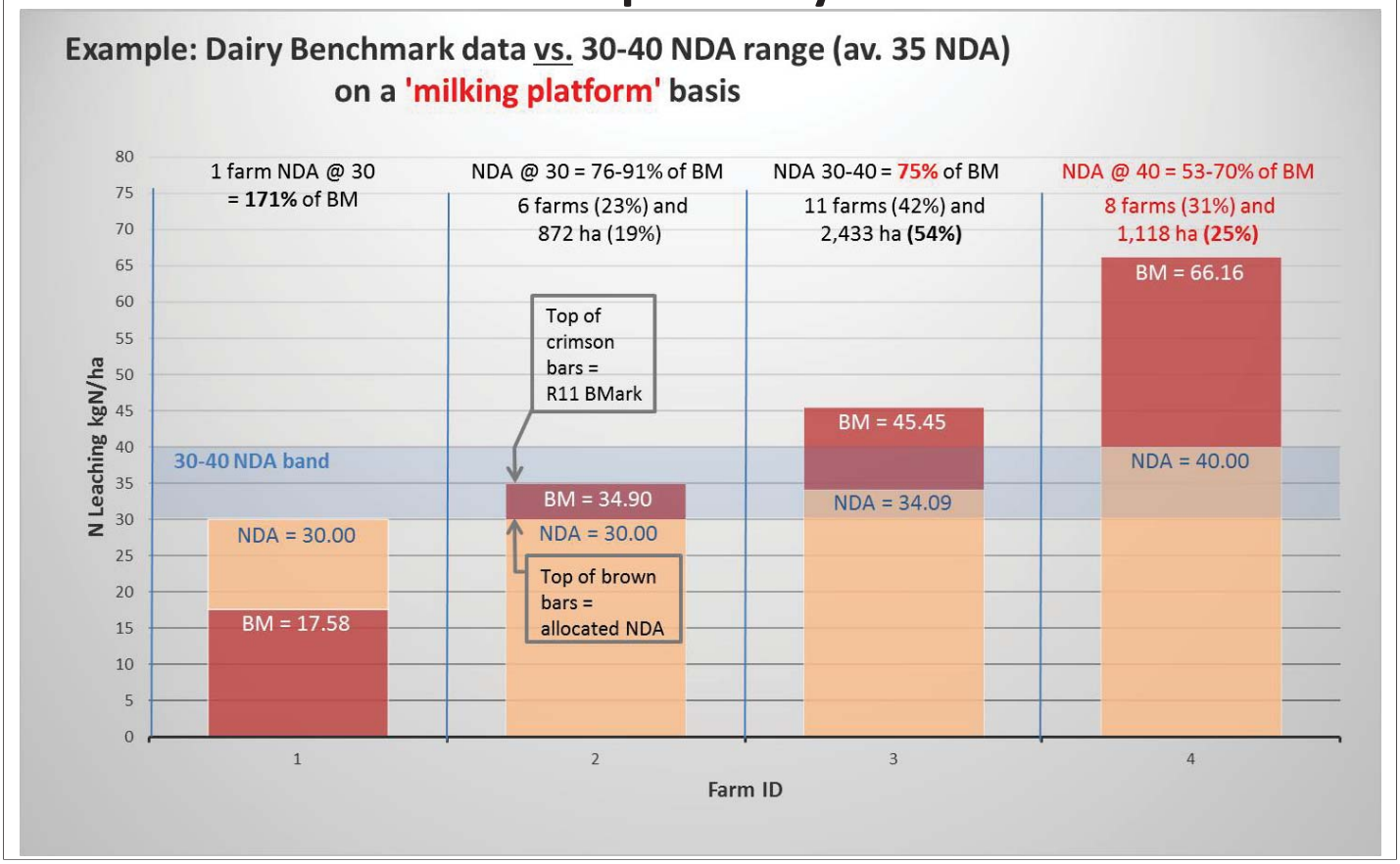
Could this be a pragmatic and simple surrogate for NDA ranges based on geophysical factors like rainfall, topography, soil type, farm system?

A hybrid approach with a limited NDA range for each sector can achieve the same N reduction as a more simplistic 35/13 NDA allocation

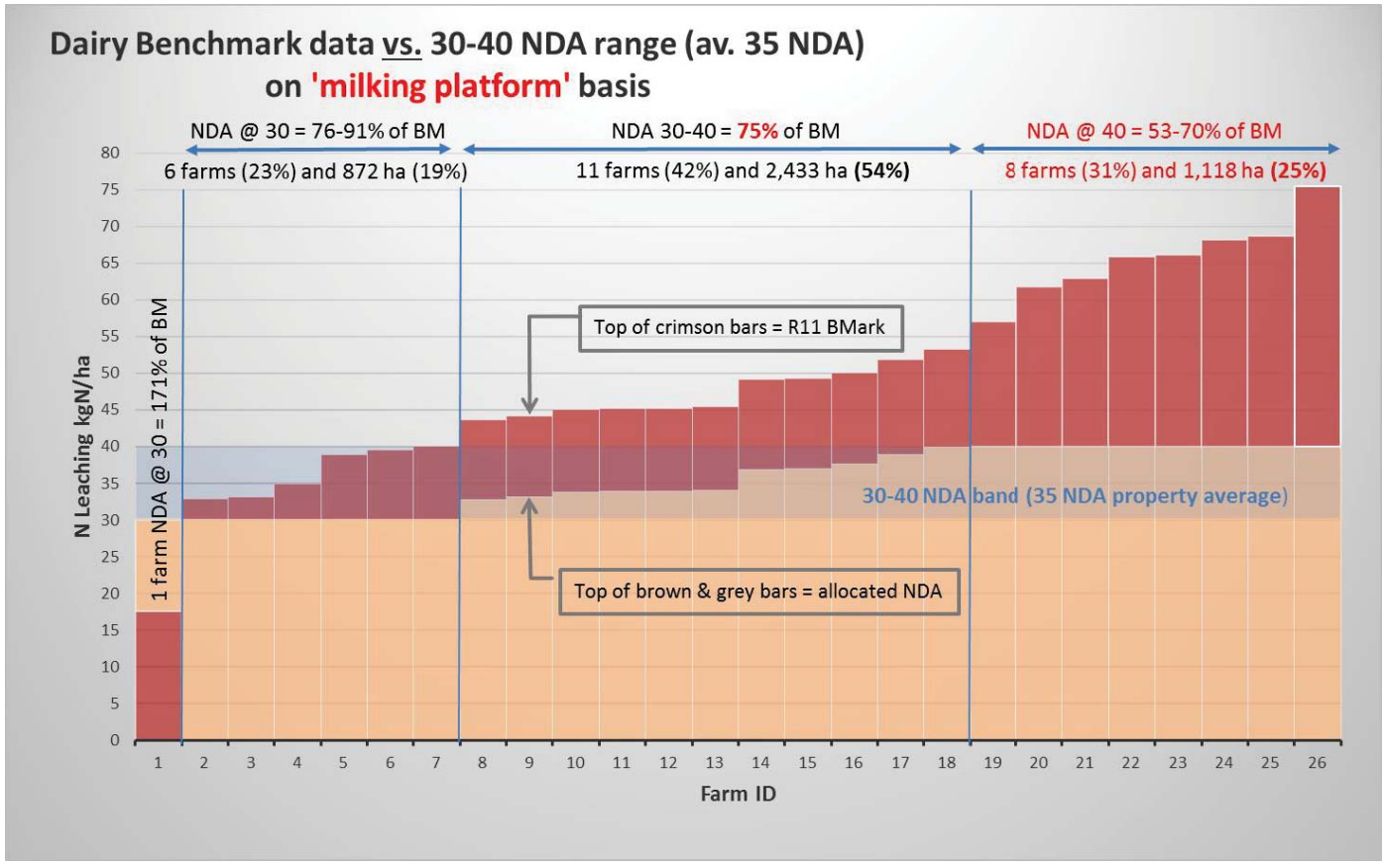
And …

will better accommodate more intensive drystock land uses (eg. dairy support, intensive beef) which were in place as at the 2001-2004 benchmark

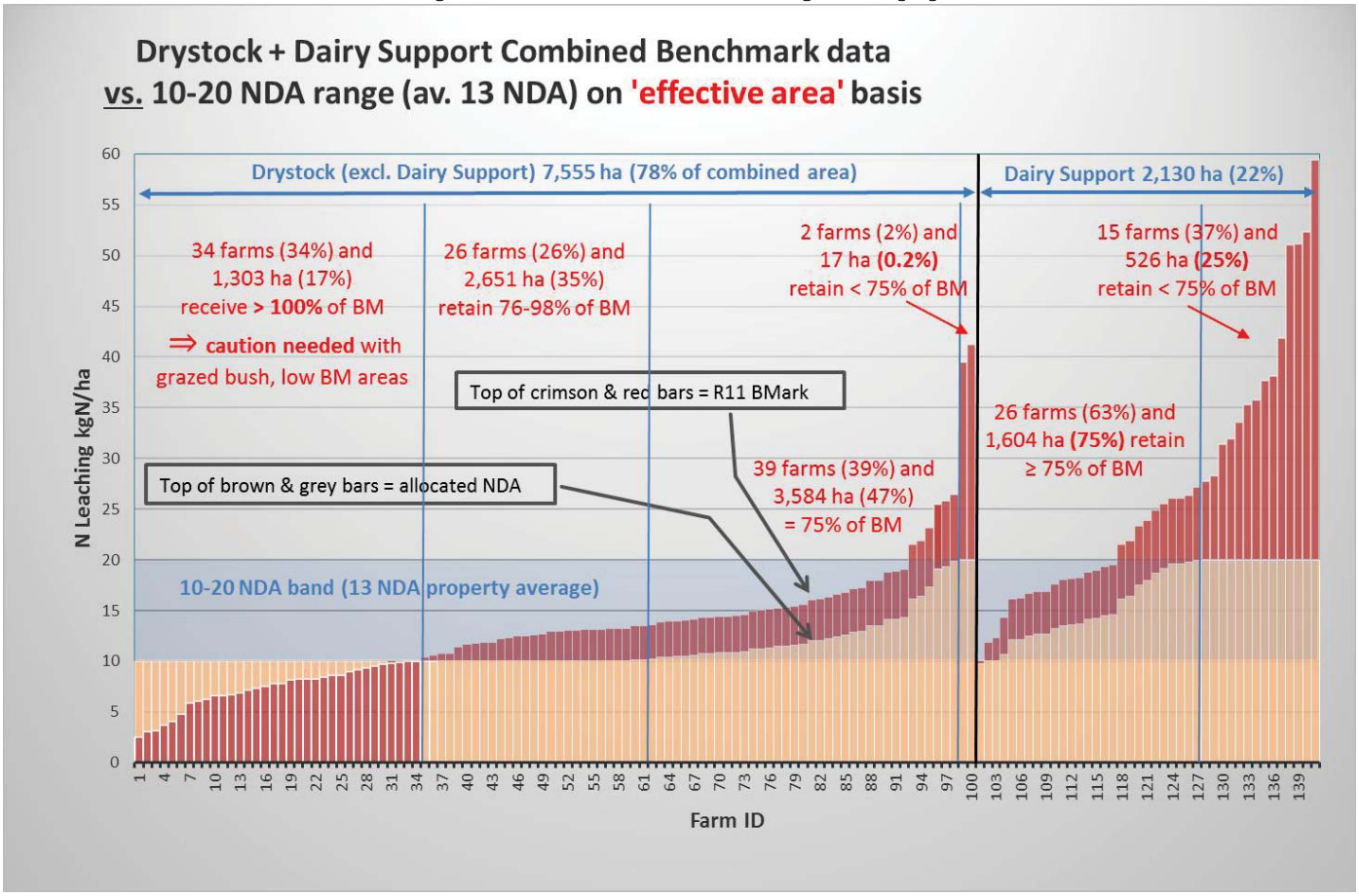
NDA Range Derivation from Benchmark Data
4 x Example Dairy Farms



NDA Range Derivation from Benchmark Data - Dairy



NDA Range Derivation from Benchmark Data – Drystock and Dairy Support



Key points

1. Proposal is for a **two** sector NDA allocation (Dairy & Drystock)
2. A minimum and maximum NDA is proposed for each sector (Dairy 30 NDA min, 40 NDA max; Drystock 10 NDA min, 20 NDA max). Within those ranges properties would be allocated 75% of their 2001-2004 benchmark
3. A 75% within range weighting most closely approximates the target NDA for each sector (35/13)
4. A 10 NDA range for each sector is proposed to recognise between farm variance in historical benchmark values, stocking policy, farm systems, soil type, rainfall and other geophysical characteristics

Caveats

1. The Rule 11 benchmark database (April 2013) does not capture all pastoral farming in the Lake Rotorua catchment. Whilst results are highly indicative, total sector areas are at variance with the ROTAN database
2. Many parcel areas < 40ha were not benchmarked; however, a significant number of parcel areas < 40ha were also included in the benchmark analysis
3. Rule 11 Benchmark data was based on Overseer vs 5. Subsequent Overseer versions may predict higher or lower leaching rates
4. Assessment protocols used for Rule 11 benchmarking may have introduced some anomalies (eg. the assessment of grazed bush parcels at the lower end of the benchmark spectrum for drystock properties).
5. Any errors and omissions are excepted

Summary of Lake Rotorua Overseer-RMA Rules Workshop 15 Nov. 2013

Background

This workshop is part of the wider Rules and Incentives work programme, focused on the potential use of the Overseer nutrient budgeting model within new rules for the Lake Rotorua catchment. A more comprehensive report will be presented to StAG after completion.

Workshop Agenda

- Context – Simon Park
- Rule 11 and Overseer – Penny MacCormick
- Local policy context – Sarah Omundsen, Lisa Power
- Overseer history, governance and development – Greg Sneath
- Overseer science, uncertainty and version issues – David Wheeler
- A farmer perspective – Stuart Morrison
- 1st Workshop session: What are the key Overseer questions for Rotorua?
- 2nd Workshop session: Answering the key Overseer-RMA questions

Workshop Objective

To provide advice to BOPRC on the regulatory use of the Overseer model to control farm nutrient losses in the Lake Rotorua catchment, consistent with the proposed RPS and recent BOPRC decisions, by drawing on comparable NZ experiences, literature and expert advice.

Key Overseer-RMA questions

Four key questions were pre-circulated and these drove workshop discussion, as follows:

- Will Overseer estimates of NDA be "good enough" in terms compliance, N purchase (incentives) and N trading (between farmers)?
- How should a NDA rule account for Overseer version changes?
- How should Overseer uncertainty be accounted for in the NDA rules?
- How should farm nutrient management plans be linked to Overseer and the NDA rules?

The workshop discussion is structured around these four key questions and summarised below. Please note that the discussion below captures a mix of consensus and individual views. The workshop invitees will be asked for further advice to narrow down key recommendations.

Will Overseer estimates of NDA be "good enough" in terms compliance, N purchase (incentives) and N trading (between farmers)?

1. Yes - Overseer is "good enough" and has been effectively endorsed as "fit for purpose" in Environment and High Court decision on the Lake Taupo Variation 5 and Horizon's One Plan.
    a. Rephrase the question as: "will using Overseer help to meet the Lake Rotorua target?"

2. There is no current alternative that covers a broad ranges of farm systems with processes and resources to update the underpinning science, user interface and system coverage, noting:
    a. The regulatory use of Overseer is outside its original purpose, and (largely) outside current funding arrangements.
    b. Overseer enables an output focus (N loss) which is much better than specifying inputs such as stocking rate, N fertiliser use etc.
3. Rules should still enable other models to be added later, if suitable models are developed e.g. industry/crop specific models.

How should a NDA rule account for Overseer version changes?

4. Assessment of the differences between NDA levels and monitoring (actual/current N loss) must use the same version of Overseer – "comparing apples with apples", noting:
    a. Re-running new versions of Overseer with the original/previous input data, then comparing with status quo or future mitigated scenarios
    b. Access to original input data important i.e. robust information protocols and effective database access is needed, given farmer sensitivity
    c. Robust IT systems, maintenance and funding needs to be established
    d. Taupo NDAs are public but all other information is confidential to farmer and council.
5. Clarity is needed on what "version change" means as there are three tiers denoted by the three digit version reference i.e. an explicit RMA version protocol is needed.
6. Overseer version 5.x.x results were broadly similar, compared with a step change/increase in version 6 (20% plus), at least for Rotorua soils/rainfall.
7. Fixing a version number in the rules is a trade-off between "RMA certainty" and gradual obsolescence as science and new features are added, noting:
    a. Farmers and Council <u>want</u> to see the introduction within Overseer of new mitigations and new farm systems which may be particularly important in the Rotorua catchment.
    b. Multiple Councils/plans locking in a specific version would require AgResearch to maintain multiple versions (at a cost) and make consistent Overseer use difficult.
8. Consider implications of version changes relative to fixed numeric NDA levels e.g. the shift from version 5 to 6 switched most farms needing One Plan resource consent from "controlled activity" to "restricted discretionary" status, with accompanying uncertainty.
9. Overseer-driven NDA can/should be complemented by other tools to make the regulation more robust e.g. a risk-based score card.
10. As noted above, it is preferable for the required NDA to be amended with each (major?) version change, noting:
    a. The RMA challenge where a numeric NDA level is specified within consent conditions.
    b. Consideration should be given to a proportionate share NDA, analogous to the ITQ system used in NZ quota-managed fisheries, noting:
        - Although attractive in theory, this poses major challenges in terms of perception and the RMA legislative framework

- Overseer-based NDA assessments would still underpin a farm share quota

c. In contrast, farmers will be wary of changing NDA numbers and perceive unfairness.

How should Overseer uncertainty be accounted for in the NDA rules?

11. Uncertainty must be explicitly addressed in the rules and not left for later "implementation".
12. Uncertainty in Overseer needs to be considered alongside uncertainty at the catchment scale i.e. catchment and lake modelling. Although the 435 tN sustainable load is driven by lake science, there may be future issues around N attenuation and lag times en route to the lake.
13. Overseers uncertainty is both positive and negative so the predicted output is the middle of the possible range. Whilst a claim to be at one end of the uncertainty range is plausible, it is equally plausible for the same farm system to be at the other end of the uncertainty range i.e. the 'middle' prediction is the most reasonable.
14. Physical measurement is costly/impractical and subject to significant error as well.
15. Uncertainty challenges within rules can be reduced by:
    a. Rolling average needed – 3 years adequate for dairy, some challenges for dry stock where the stock mix/system can change quickly in response to market prices.
    b. Shift the NDA regulatory emphasis to the proportionate reduction, broad magnitude and the direction of change, with consequently less focus on small NDA changes/non-compliance
    c. Consistency in using Overseer inputs is vital given multiple users within and outside Council – the pending Overseer input standard/protocol are important and should be followed by all users.
    d. Local validation trials will help, enabling Overseer tweaks (if necessary), noting:
        - Local trials to address multiple permutations of soil, rainfall and farm system are cost prohibitive
        - Overseer uses sound science principles to extrapolate beyond its calibration/validation data sets
16. Providing a NDA range that reflects Overseer uncertainty will erode reduction targets as farms inevitably shift to the upper end of any allowable range.

How should farm nutrient management plans be linked to Overseer and the NDA rules?

NB: discussion below covered monitoring/compliance issues <u>beyond</u> farm plans

17. Compliance with the NDA (including progress requirements towards the NDA) <u>and</u> the farm nutrient plan (FNP) is complementary, noting:
    a. Good nutrient practices evolve, so a flexible FNP is important
    b. FNPs need to be updated regularly and efficiently i.e. consent conditions must enable this with minimal bureaucracy.
    c. FNP/NDA compliance needs to be simple i.e. easy for both farmer and Council officer.
    d. Monitoring is resource hungry.

18. Taupo system - if the farmer wishes to intensify beyond key input parameters, the nutrient budget and associated FNP needs to be redone i.e. Overseer only re-run if inputs change significantly, noting:
    a. Taupo WRC staff have only dealt with monitoring to date, not compliance/enforcement
19. Most Overseer and farm planning expertise and resources sit outside regional councils i.e. with farm consultants, fertiliser reps and industry good field staff.
20. FNP templates/requirements must be consistent with industry initiatives and other catchment/Council requirements, as consultants and industry reps should be able to use the same or similar tools across different catchments, noting:
    a. National level coordination is vital – MPI, MfE and the Fertiliser Association are all interested in this space
    b. Alignment is needed between Overseer block set-up and the land management units (LMUs) prevalent in some farm plan templates
    c. While Rotorua is N-focused, we need to recognise farm plan templates are generally much more holistic, covering P, sediment, pathogens, animal welfare, biodiversity, energy, water use and a range of farmer-identified goals.
21. Effective farmer-Council engagement and mutual trust as important as the NDA itself.
22. Monitoring every two years, supported by random auditing (analogous to IRD) works in Taupo.

Workshop Attendees

Name	**Affiliation**
Greg Sneath, Caroline Read	Fertiliser Association of NZ
Gavin Forrest	MPI
Sara Jellie	MfE
Stuart Morrison	Dairy farmer, former StAG chair
Ian Power	Ballance Agri-Nutrients Ltd
Ollie Parsons	DairyNZ
Charlotte Rutherford, Richard Allen	Fonterra
Erica van Reenen	Beef & Lamb NZ
Lee Matheson	Perrin Ag Ltd
Alison Dewes	Headlands Ltd
Rob van Voorthuysen	Van Voorthuysen Environmental Ltd
Justine Young, Jon Palmer	Waikato Regional Council
Clare Barton	Horizons
David Wheeler	AgR Overseer team
Penny MacCormick, Sarah Omundsen (project manager), Lisa Power, Gloria Zamora	BOPRC
Simon Park	Headway Ltd, BOPRC project contractor