

Graeme Gleeson



Plan Change 1, Block 1, 30th April 2019

HRWO Plan Change 1

Plan Change 1 does not address the many underlying issues to give effect to Te Ture Whaimana – the Vision and Strategy

This submission endeavours to provide an insightful perspective how the Gleeson family will be affected and how it will respond

Where we farm – Upper Waikato FMU, Karapiro subcatchment

Our response to Plan Change 1 as notified

Our solution(s) to provide a more equitable and fair process

I am a farmer...

Farming is purposeful, it is right and legitimate (within limits!)

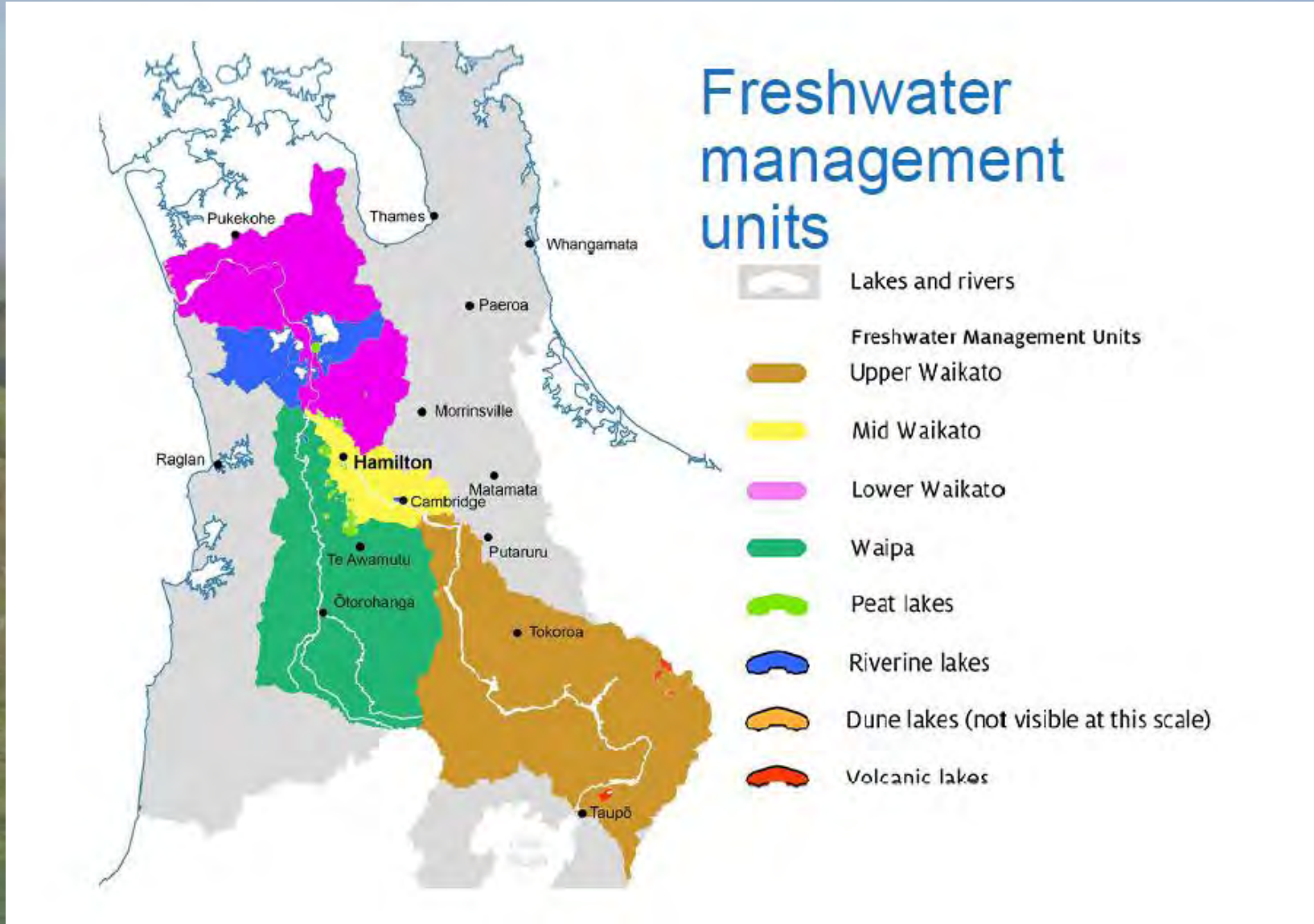
Farming provides food and fibre, products that sustain and support us

**As a farmer I manage the stewardship of natural resources recognising
the environmental footprint extends beyond the farm property boundary**

**I recognise the importance of ecosystem health and the constraints this
applies to how I may farm in an integrated and balanced manner**

considering environment, cultural / social and economic well-beings

Farming Fits the Land



Gleeson farm



**Upper Waikato
Freshwater Management Unit**



Taupo Mt Tauhara



Atiamuri Pohaturua



Maugna Tautari

**Upper Waikato
Topographical landmarks**



Fonterra Lichfield

Tauhara Geothermal



Waikato River Hydro

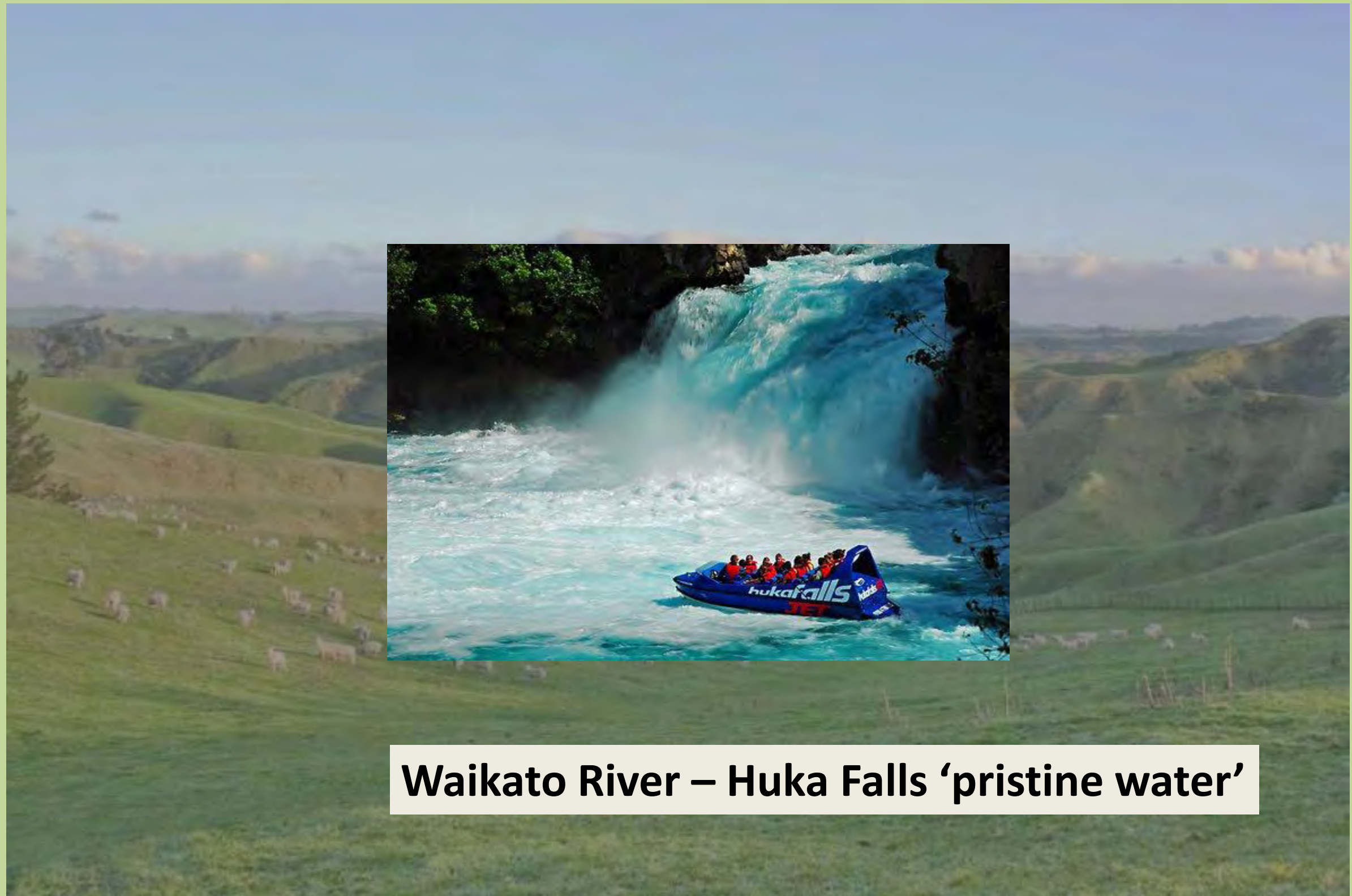


Miraka



Tuaropaki Horticulture

Upper Waikato FMU – Industry



Waikato River – Huka Falls ‘pristine water’



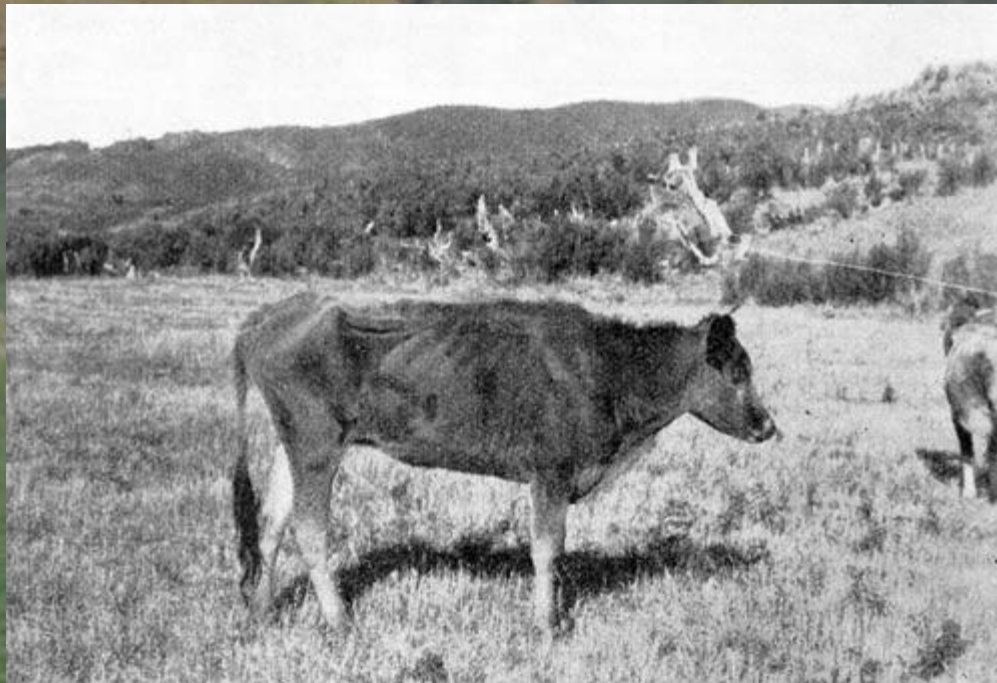
**Waikato River – Hydro dam country
Renewable energy low carbon**



Waikato River – Karapiro Dam



Historically in the Upper Waikato land use options were restricted
A lack of cobalt, B₁₂ – ‘Bush Sickness’





Historic land use change

- **Native bush logging**
- **Scrub clearance**
- **Land conversion to pastoralism**

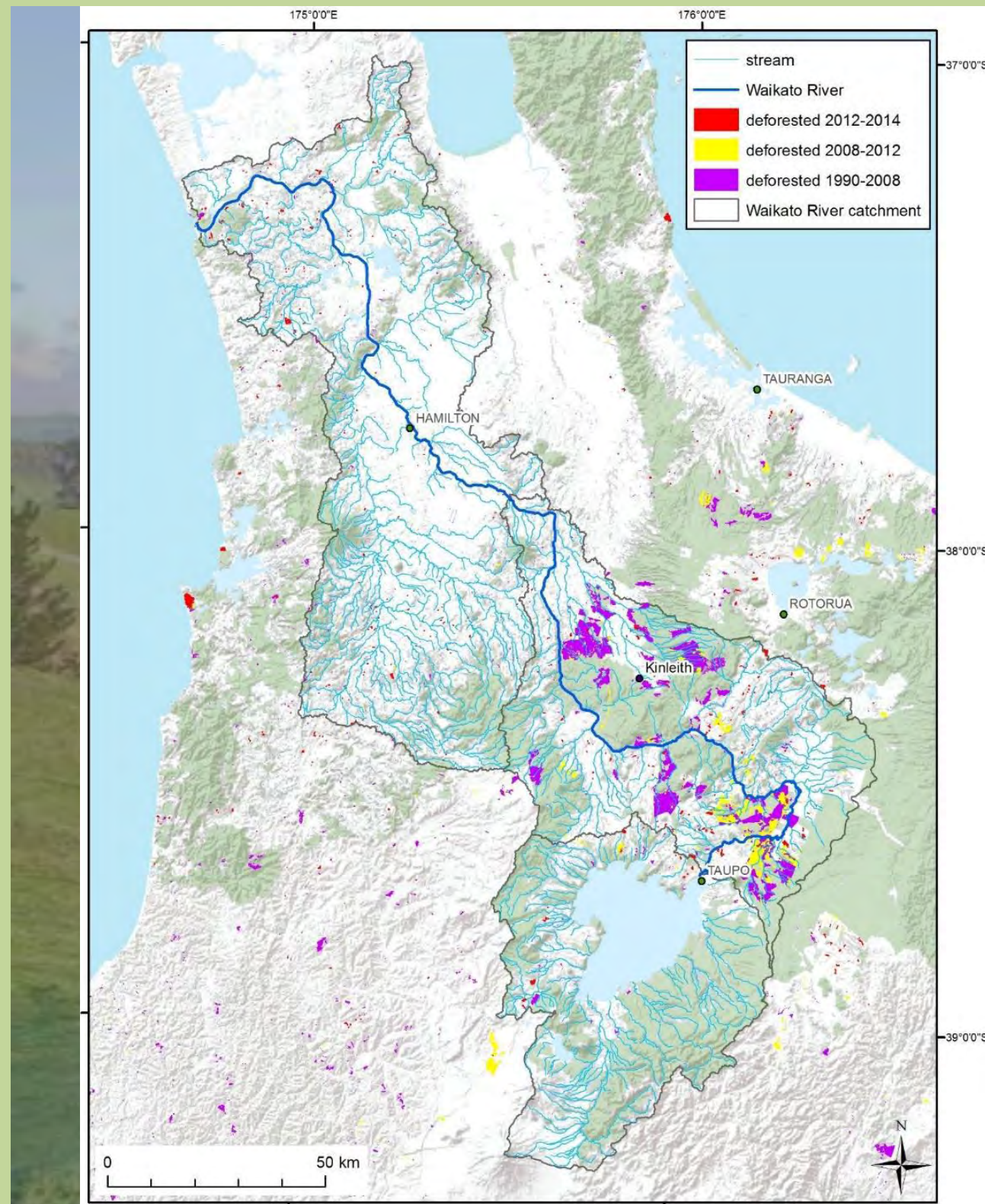




Plantation Forestry – Pinus Radiata



Kinleith Oji Pulp and Paper



Upper Waikato FMU Land use change (recent)

- Forestry to
Intensive pastoralism
- Encouraged by
unbridled opportunity
- No regulatory
oversight,
- Increasing milk price,
- The ETS price crash



Upper Waikato FMU
Land at first inspection appears very suitable
for Intensive pastoralism however...

Land Use Change - Forestry to Dairy



Increase of 4 - contaminant loss rates?

Additional load to waterways?

Potential for increased environmental nuisance?

Change in Ecosystem Services – better or worse?

Change in flood water hydrographs

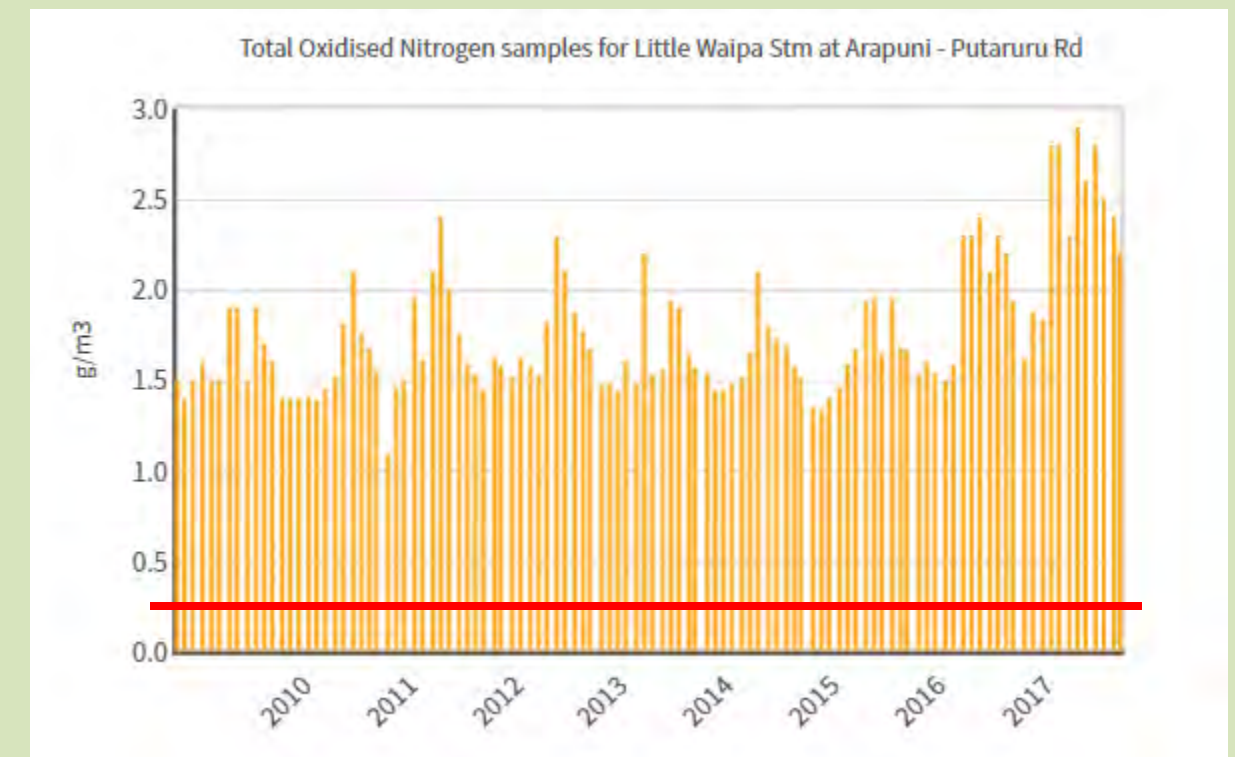
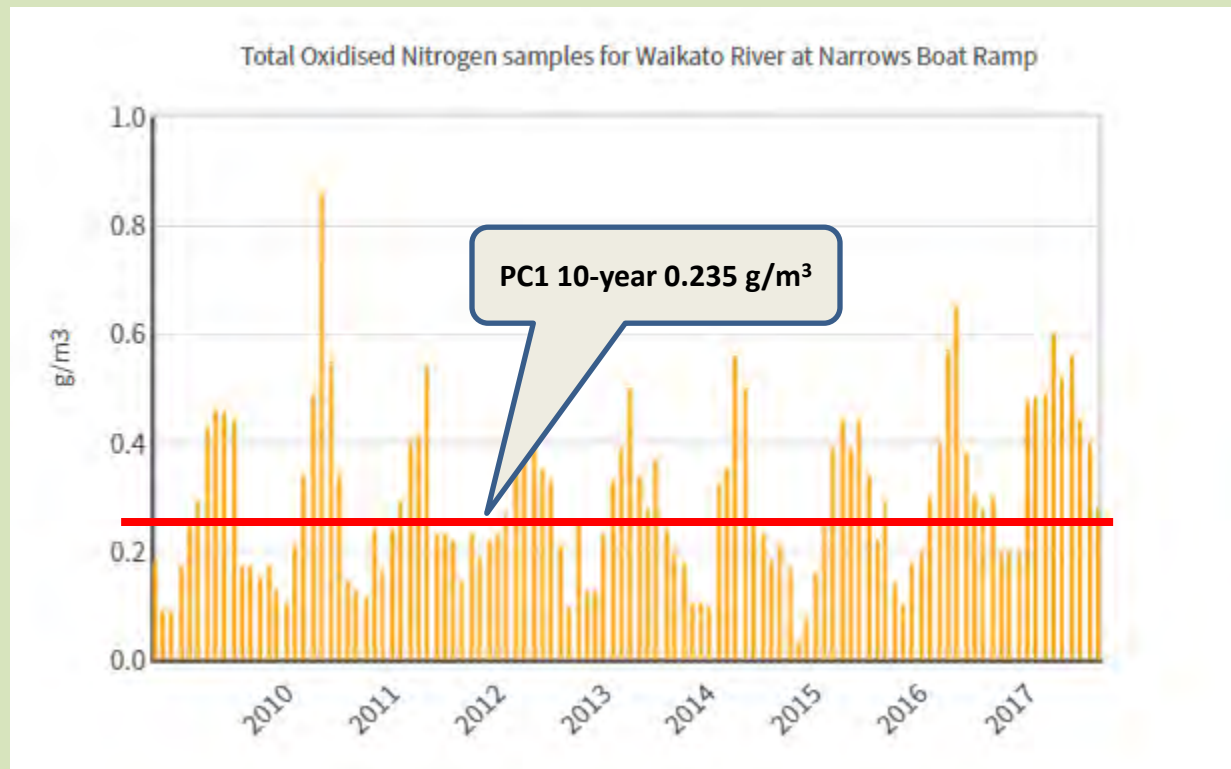
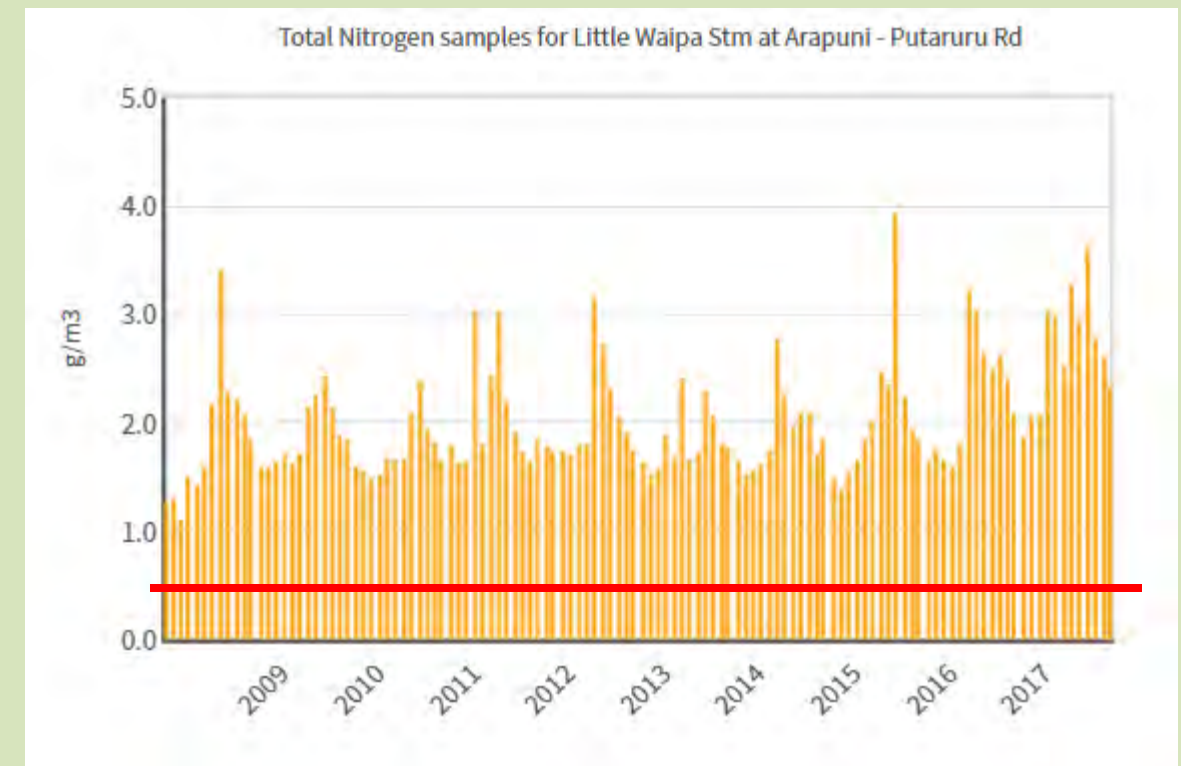
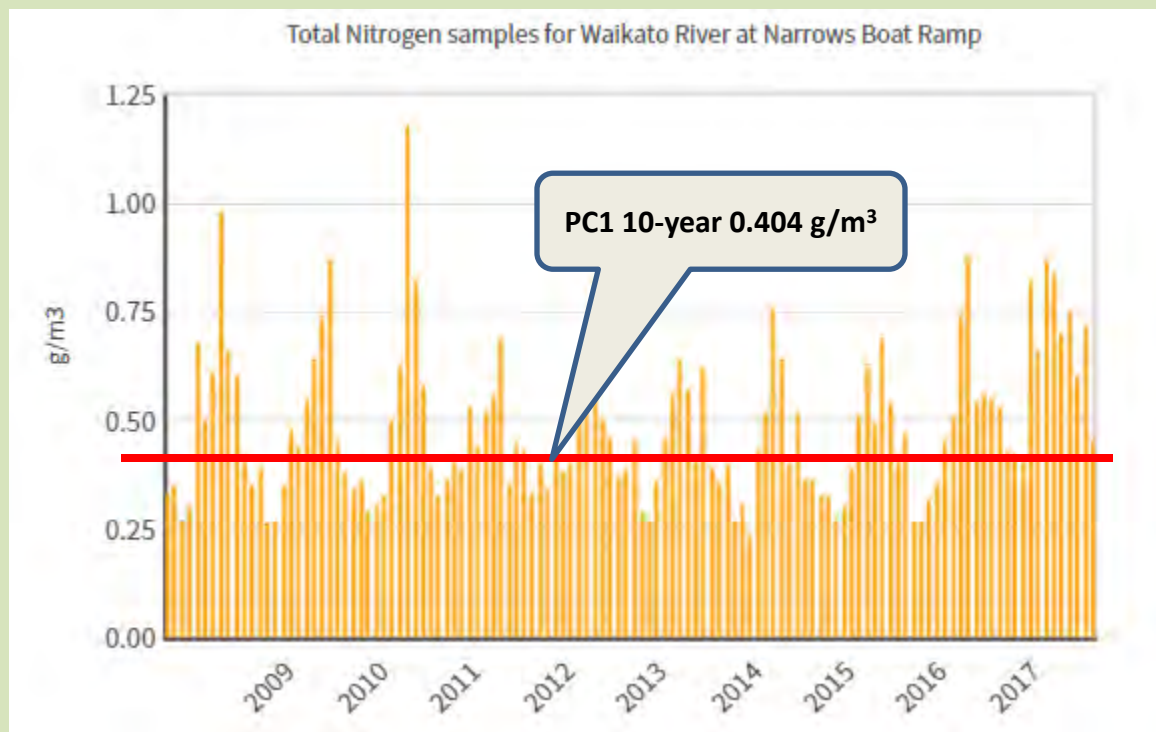
Who is culpable for the externalised cost

Perhaps more important who will pay?

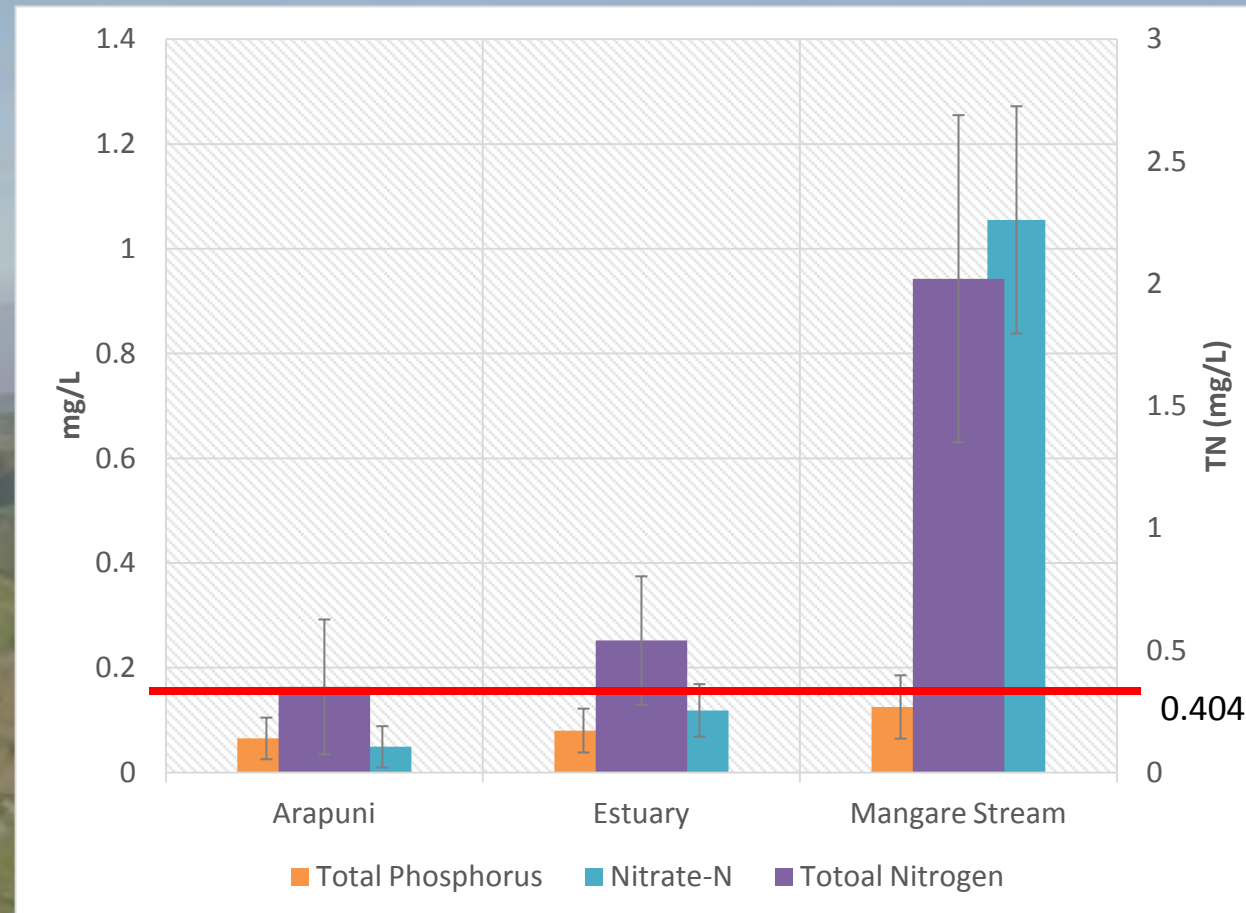
Not forgetting adjustment in –

Greenhouse Gases and Biodiversity





**Upper Waikato – Karapiro (Narrows) and Little Waipa
Total Nitrogen and Total Organic Nitrogen
What is the appropriate limit?**



Gleeson farm Mangare Stream water quality , summer 2019

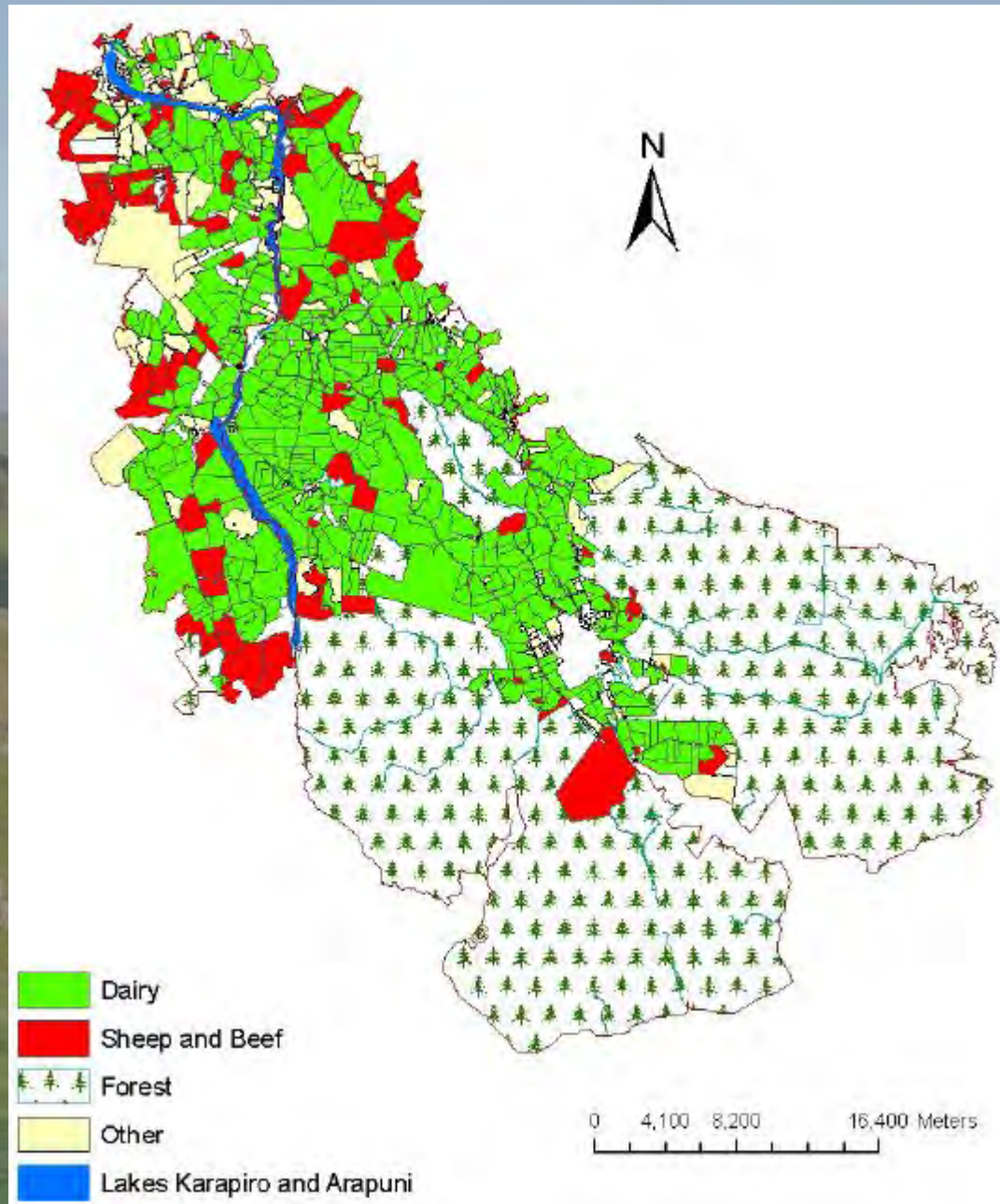


Upper Waikato

- Subdivide the Upper Waikato FMU / 4
- Identify more Subcatchments



The water quality from each and every tributary subcatchment will be the outcome upon which success will be measured

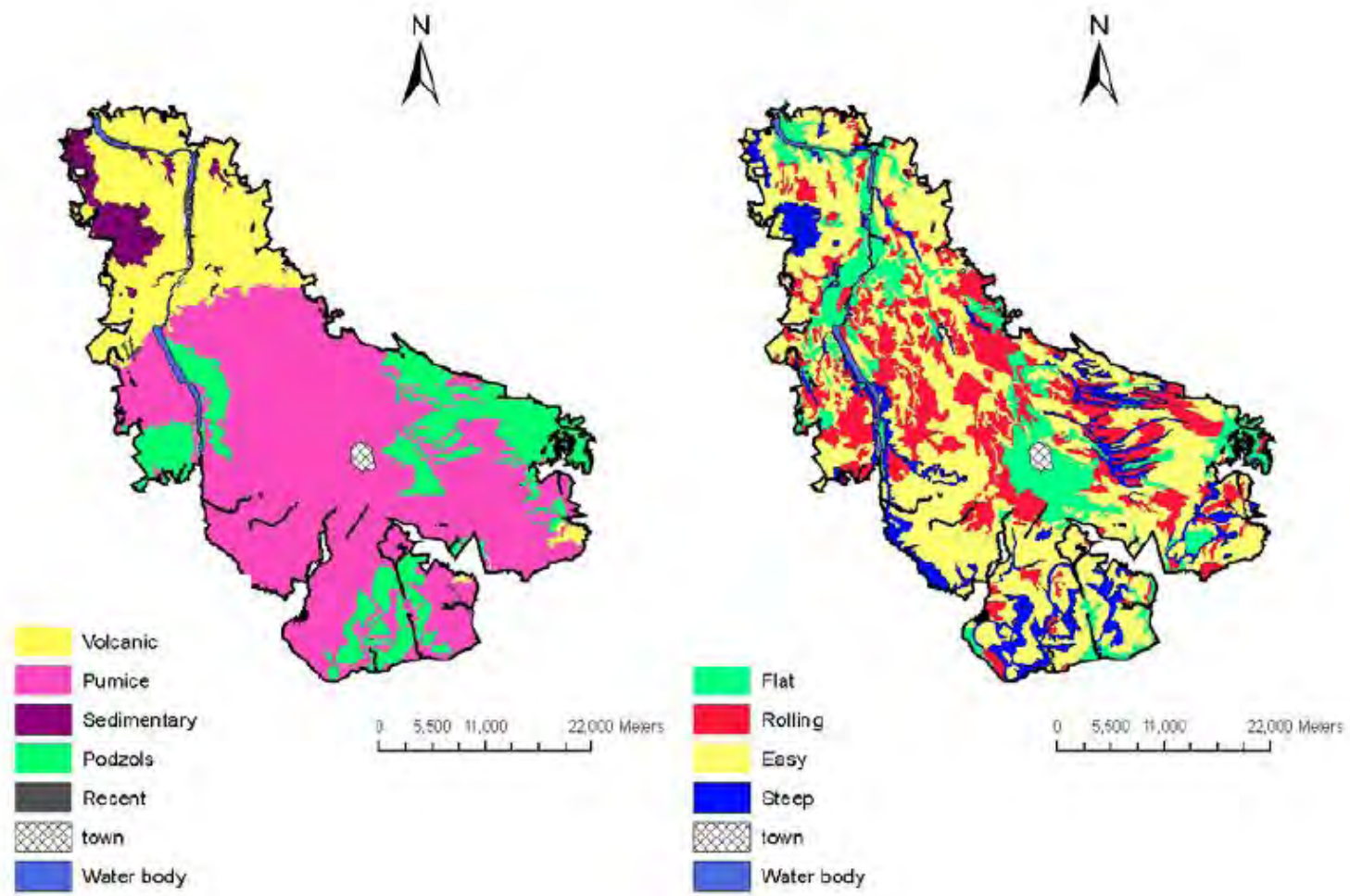


**Upper Waikato FMU
Arapuni & Karapiro subcatchment**
 Area - 155,303 hectares
 Annual average precipitation of
 1200-1600 mm/year
 Land use year – 2008 is dairy (34
 percent), pastoral S&B (13 percent) and
 forestry (48 percent)

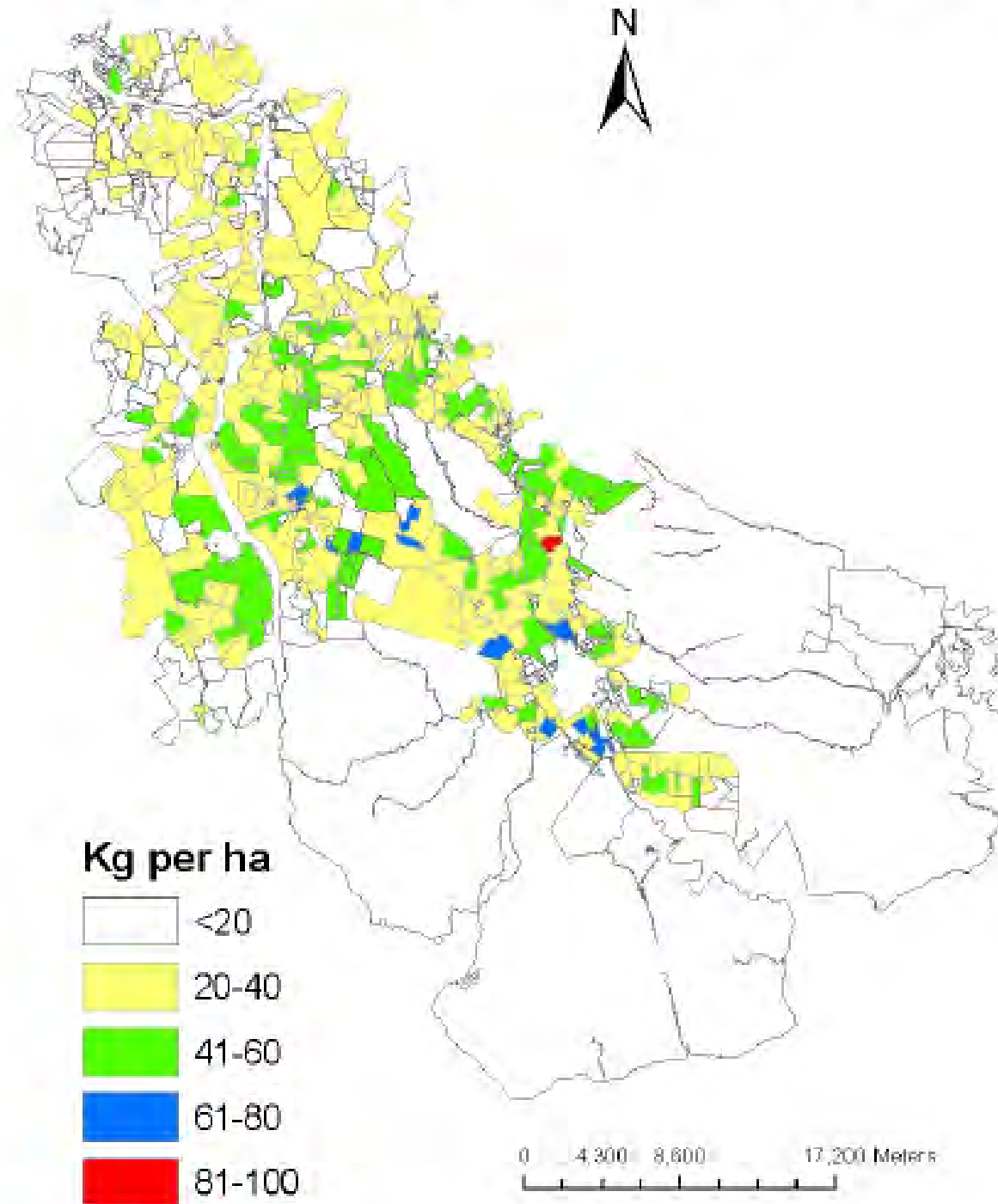
Major land uses in the catchment			
Land use	No. properties	Area (ha)	%age land use
Dairy	370	52887	34.3
Sheep, Beef, Deer	211	20434	13.2
Forestry	6	74711	48.4
Native bush	3	2881	1.9

Reference - An Assessment of the Benefits of Cleaner Streams: A New Zealand Case Study, 2010

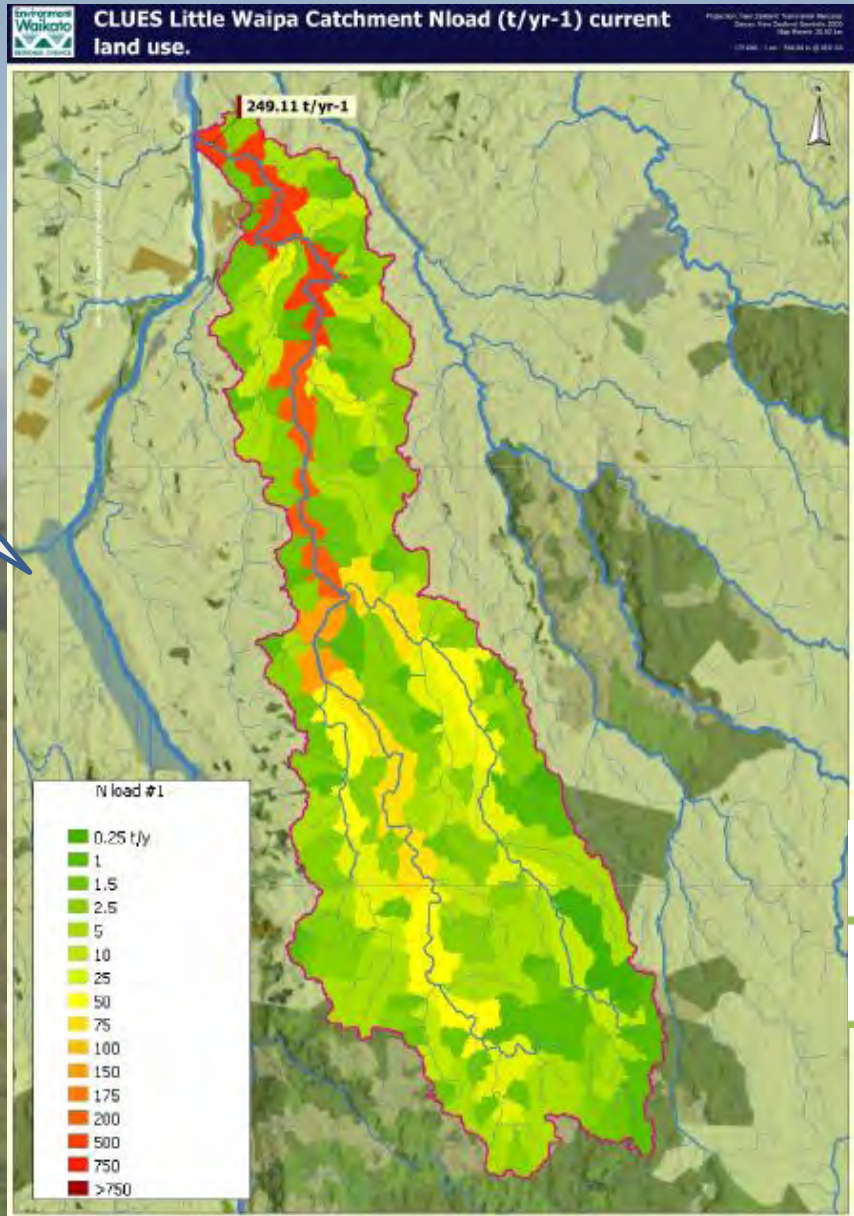
Soil type and topography



Simulated dairy farm nitrogen discharges per hectare



Gleeson farm



Catchment modelling for N load

Little Waipa 2008 Landuse

	Average kg/N/ha (range)
Little Waipa (N= 45 farms, 7288 ha)	37kgN/ha (23-54)

Integrated Catchment Management project

Sub Catchment approach to resolve water quality

Sub Catchment Adaptive Management Approach to Water Quality
A more supportive community approach that will have a focus upon
engaging peer group action working together

A catalyst to discuss, adapt and resolve local issues
Incentivising change to Farming that Fits the Land

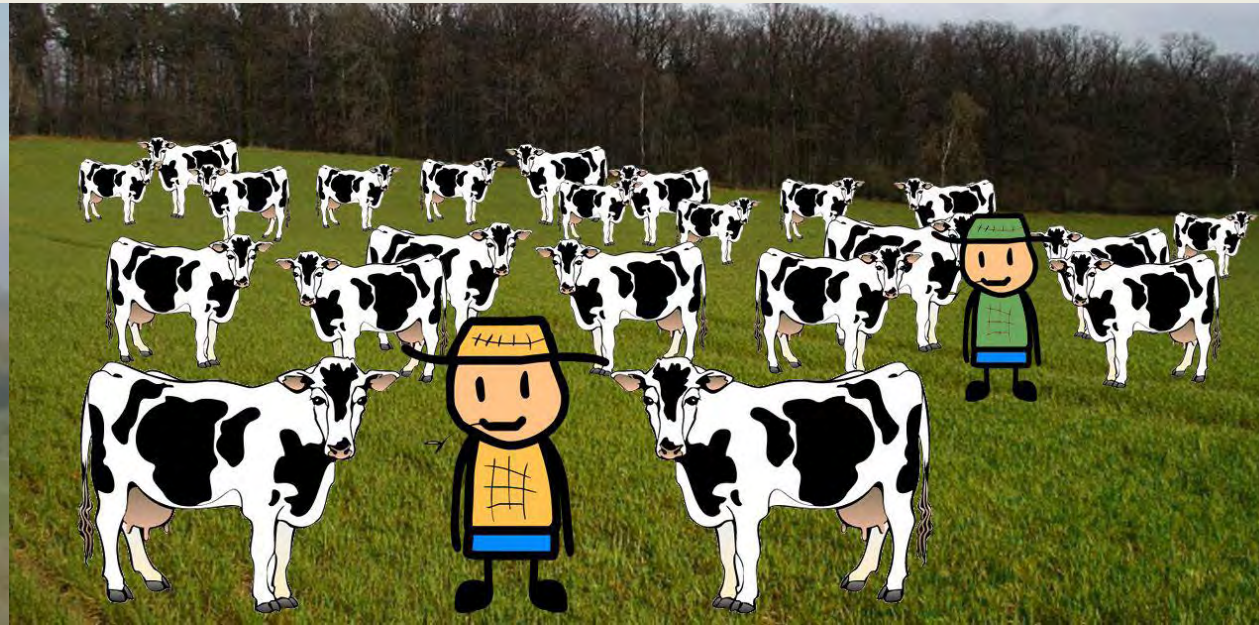


What are the issues?
They're different for each sub-catchment

**Attributes, Limits and Objectives will need
to be established for each subcatchment**

Who should be culpable to reduce contaminant loss?

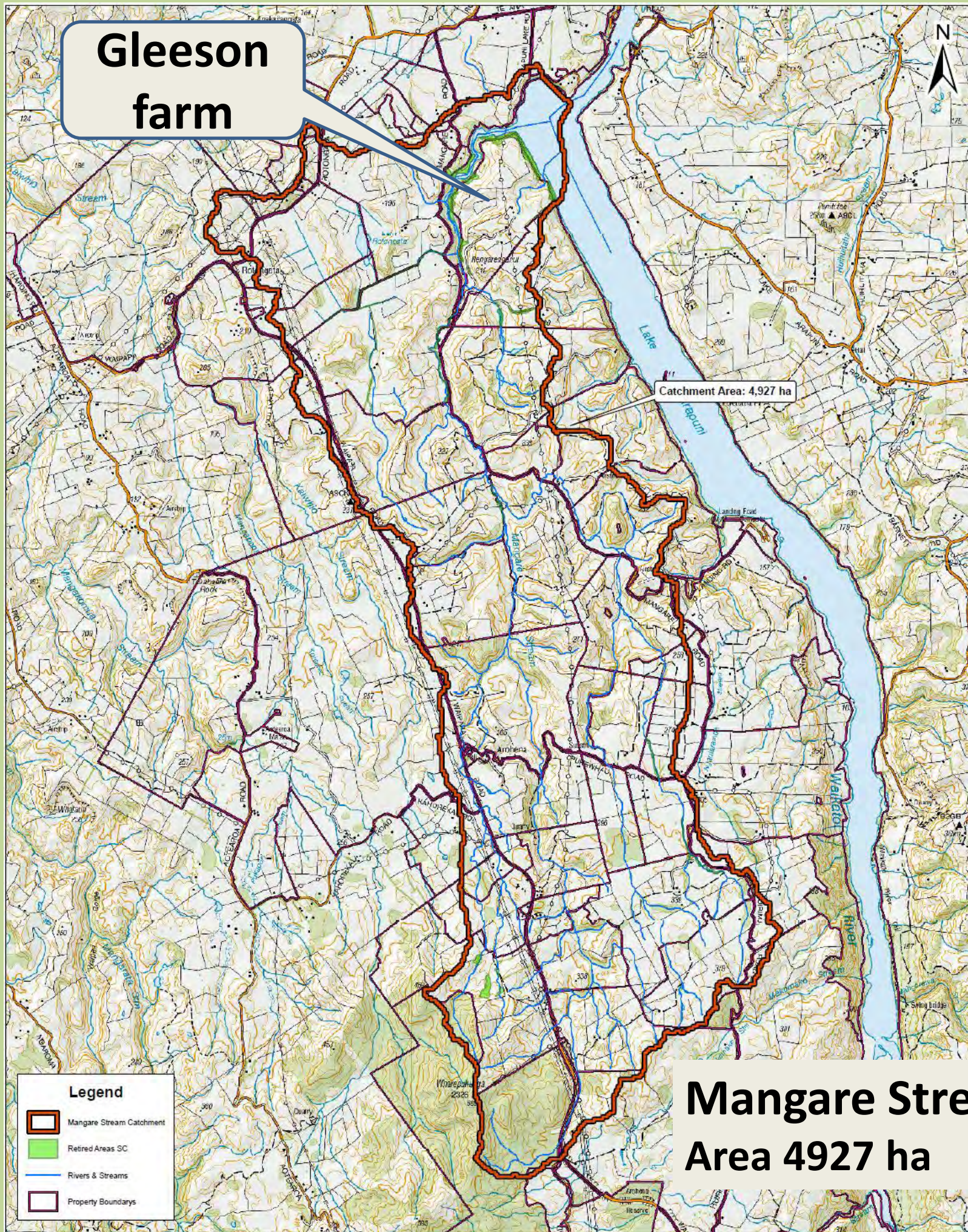
Farmers were encouraged to intensify increase milk supply – more cows



‘Peak Cows’ ??

Over-Allocation ??

**Unregulated opportunity to change land use intensity has created potential for environmental nuisance.
Where was the necessary governance, checks & balances, due diligence to avoid the confrontation that now exists?**





G Gleeson Mangare Stream Karapiro SubCatchment Upper Waikato



Farm location 441 Mangare Road RD1 Pukeatua 3880
Long water frontage – Mangare Stream And Lake Arapuni



**The Gleeson children – Liam, Rachel and Emily
Lake Arapuni and Maungatautari in background**



Liam Gleeson – orphan calf feed time



Land type variable – Easy rolling to Steep sidlings
**Livestock policy – High performance sheep
and Breeding cows**
Farming to the natural pasture growth curve
Farming Fits the Land



Land type variable – Easy rolling to Steep sidlings



Land type variable – Easy rolling to Steep sidlings



Land type variable – Easy rolling to Steep sidlings



Mangare Stream – different flow conditions



Beef cow management – Winter forage crop and Rotational grazing





Beef cow riparian and steep land grazing management





Retiring pastoral land – planting indigenous and production trees



Steep sidling retirement and detention bunding



**On-farm mitigation – cattle excluded
Steep land and wet seeps**



Summer dry – 5 year return? Resilience?

Enterprise	N Loss Kg/ha
Sheep + 20 month Bulls	16
Existing – Dry Summer – No April N	17
Sheep + Steers & Heifers	18
Existing	19
Existing – Dry Summer, April N	19
Existing – Wet Summer, additional trade bulls	22
Sheep + Dairy Heifers	20
Dairy & Forestry (Maize on Feedpad) & Dry cow standoff May, June, July	32
Dairy & Forestry (Maize in Paddocks)	35
Dairy & Forestry (Maize on Feedpad)	35

Overseer modelling N loss results

Existing S&B farm system

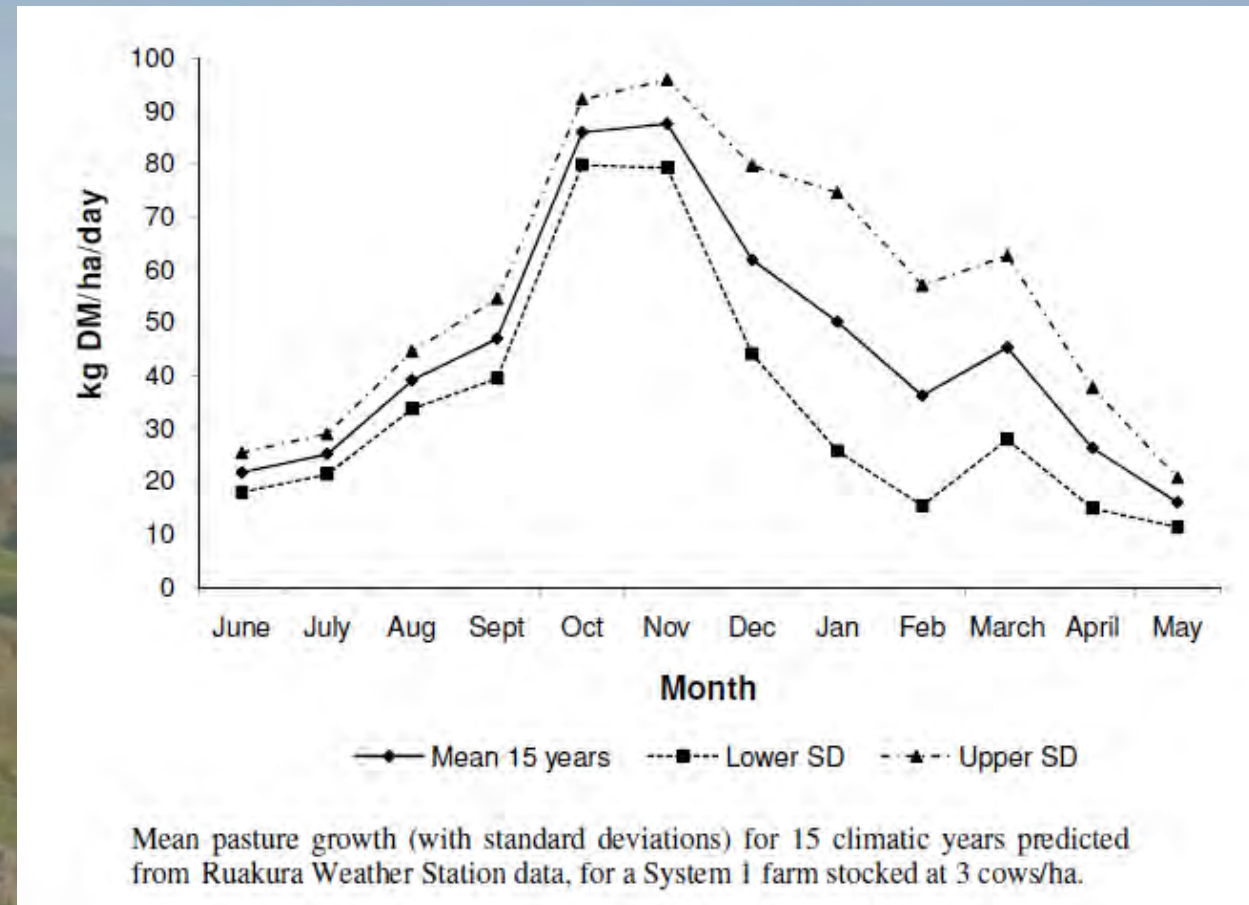
19 kgN/ha

S&B options flexibility range

16 – 22 kgN/ha

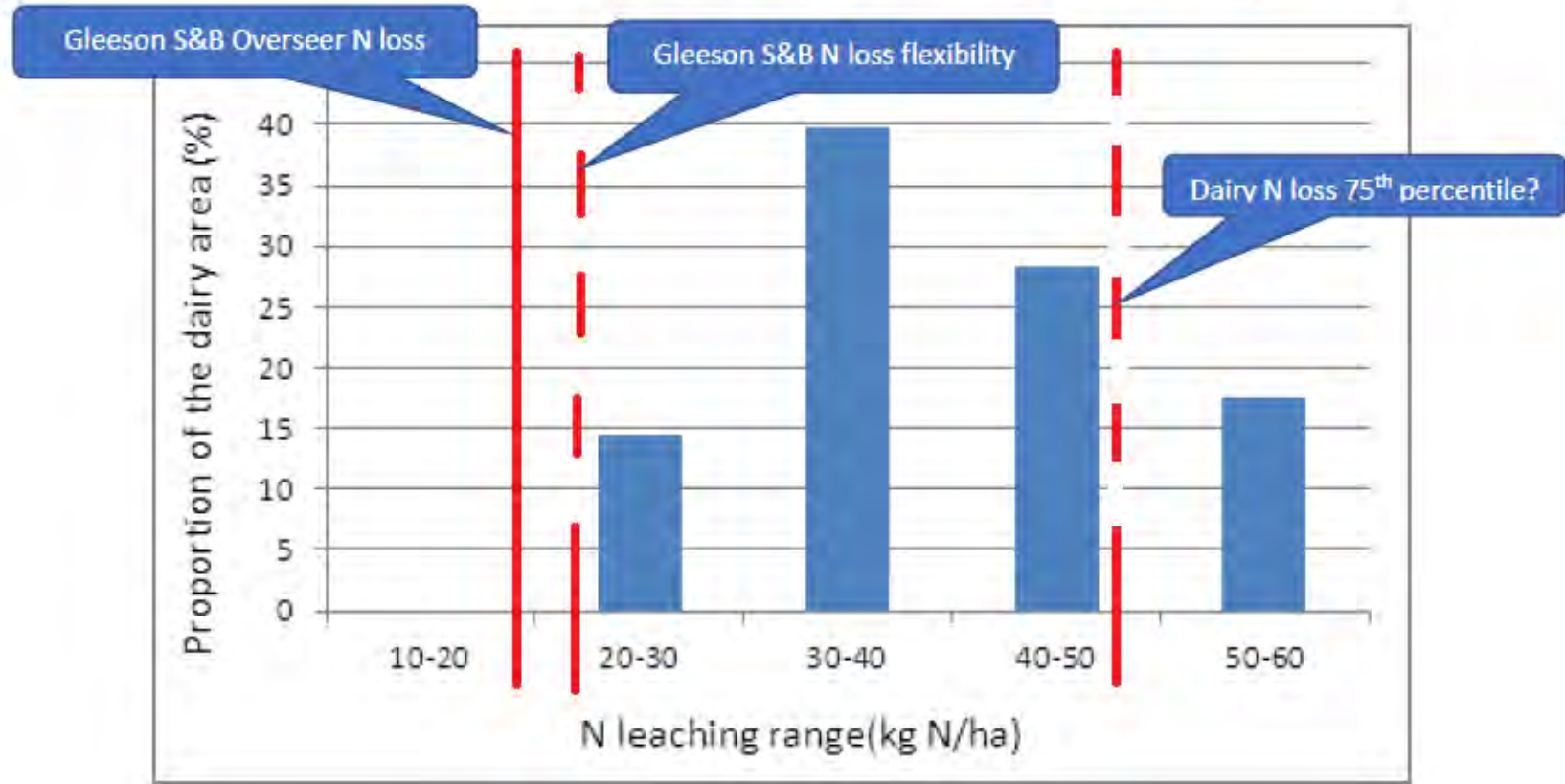
Dairy conversion (with forestry)

35 kgN/ha



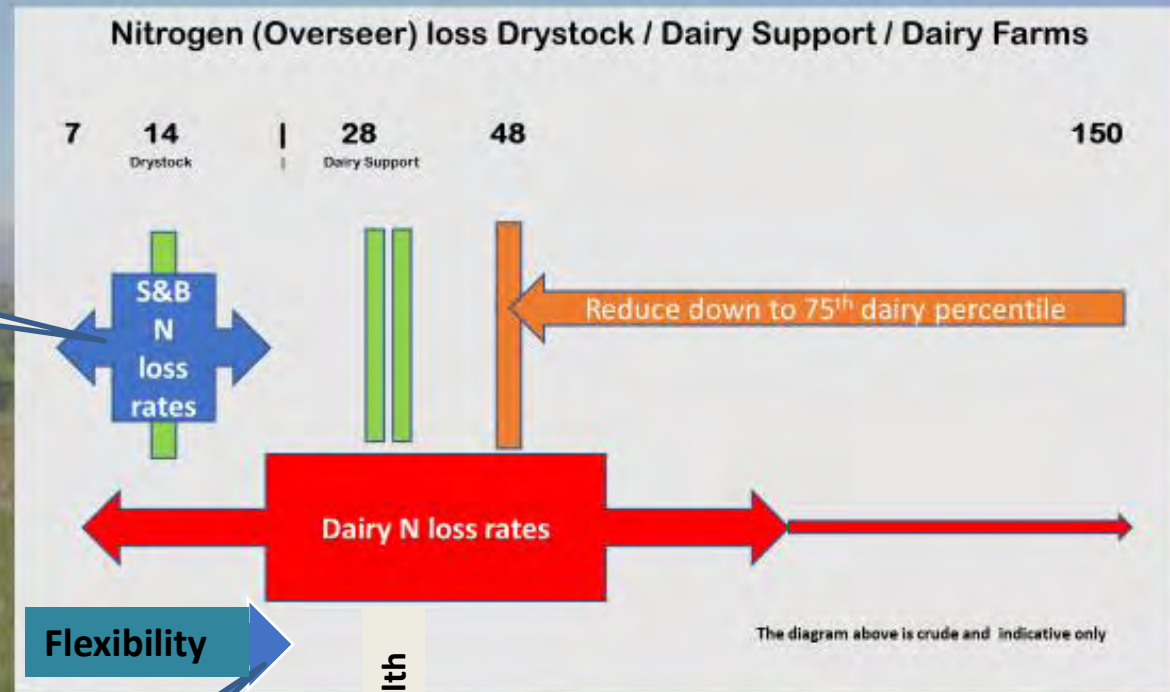
Pasture growth variability
Summer incurs greatest deviation

Distribution of nitrogen leaching in the Upper Waikato region



reference - Waikato Dairy Farm Mitigation Impacts 2014

No Grandparenting

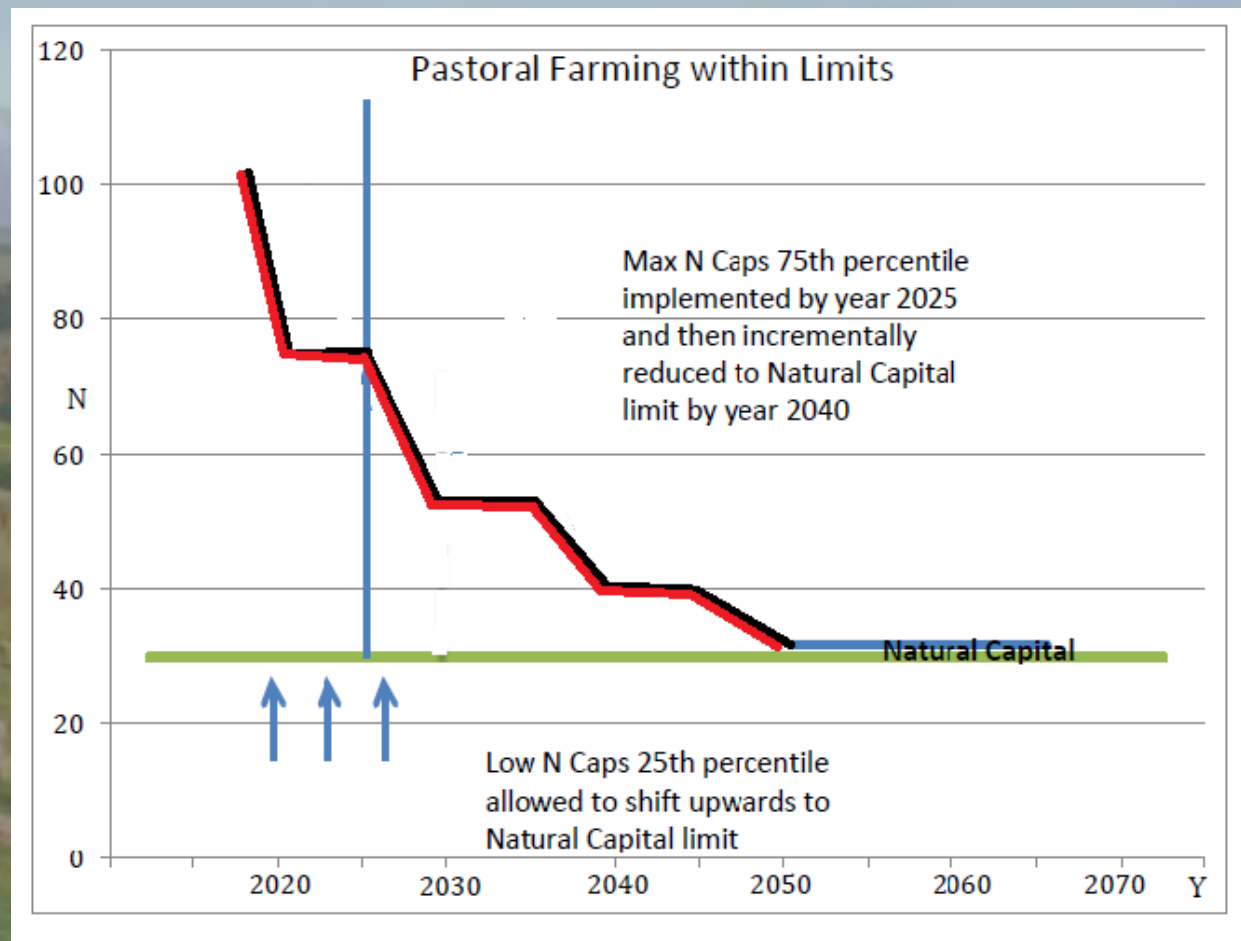


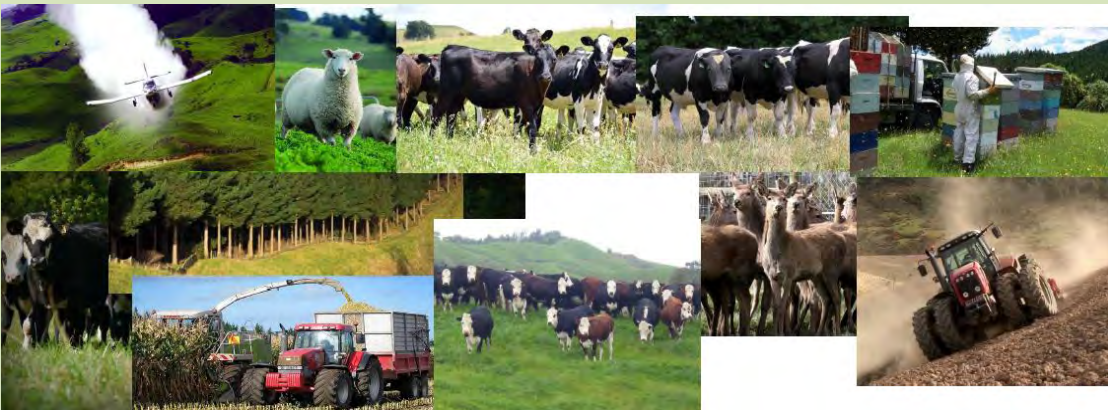
Catchment	75th Percentile
Central Waikato	34
Lower Waikato	30
Upper Waikato	59
Waipa	47

Interim permitted flexibility threshold 20 - 25 kgN/ha

Swimmability, Mahinga Kai, Ecosystem health

We need nitrogen limits established for Swimmability, Mahinga Kai and Ecosystem health for every individual subcatchment to provide certainty, direction and pace of travel





**Sheep, Deer, Beef-cattle (mixed) Farm Systems
Diverse, Different, Flexible and Complex**

Plan Change 1 demonstrates no understanding of low N loss farm systems which require flexibility to be profitable

Low N loss farm systems of mixed land use requires juggling of livestock policies to achieve a good fit with the grass growth curve in conjunction with market demand and climate change

(Flexibility is not land use change nor change to a livestock policy that may be considered misplaced and / or marginal)

Nitrogen Allocation Framework – a proposal

Reducing Nitrogen Loss at source on farm to decrease the receiving environment load

Creating an allocation framework

(pastoral livestock not horticulture)

Acknowledge the natural resources of the farm and utilise this variability as a proxy

- **Land LUC Class and inherent versatility and capability of the land to support livestock**
(grass growth curve livestock stocking rate limit)
- **Understand effects of soil type, rainfall and attenuation buffering**
(all precursors that impact N loss)

Upper Waikato FMU					
Soil type – Pumice					
LUC	Liveweight kg LW/ha				Slope
	Wintered 1st July				
	Rainfall				
	≤ 800mm	≤ 1000mm	≤ 1200mm	≤ 1400mm	
I & II	1500	1400	1300	1200	Flat
III	1200	1100	1050	1000	Rolling
IV	1000	900	850	800	Strongly rolling
V	-				-
VI	800	750	700	650	Hill
VII	600	550	500	450	Steep Hill

Establish an interim target year – 2050

(3 plan changes to transition state of water quality improvement)

PC1	year 0 – 10 years	5 percent improvement	Staged Improvements
PC2	year 10 – 20 years	15 percent improvement	
PC3	year 20 – 30 years	25 percent improvement	

Farm Environment Plan Good Management Practice (GMP)

- B+LNZ Workshops
- + Identify land use risk
- + Good Management Practice
- + Nutrient budget
- + Work program timeline



Livestock enterprises having
a good fit with the land
Diversified land use



Farm Plans must be designed for the issues specific for the farm and sub-catchment



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Livestock exclusion practicality






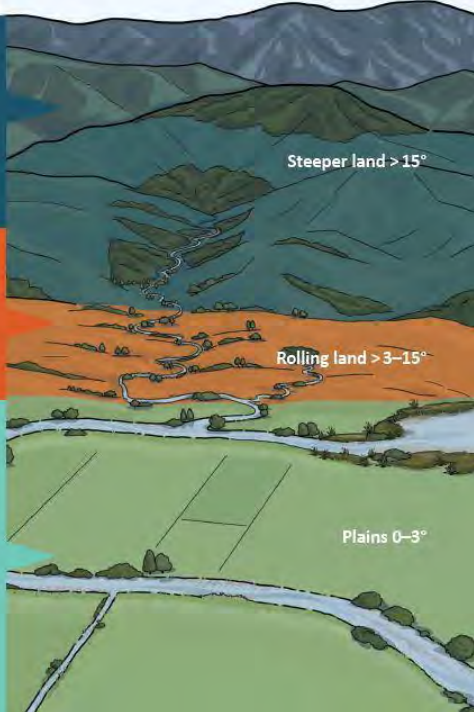
How to measure slope?

**What is deemed the
dominant slope?**

80+ percent?



The contaminant loss risk from Hill country farms (with low intensive livestock policies) may be far greater from Critical Source Areas than from waterways.

Pigs	Dairy cows [on milking platform]	Dairy support	Deer	Beef cattle	
					
1 July 2017 On steeper land, pigs must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2017 On steeper land, dairy cattle on milking platforms must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2022 On steeper land, dairy support cattle that are break feeding must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2022 On steeper land, deer that are break feeding must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2022 On steeper land, beef cattle that are break feeding must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	Steeper land > 15°
1 July 2017 On rolling land, pigs must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2017 On rolling land, dairy cattle on milking platforms must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2022 On rolling land, dairy support cattle must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2030 On rolling land, deer must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2030 On rolling land, beef cattle must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	Rolling land > 3-15°
1 July 2017 On the plains, pigs must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2017 On the plains, dairy cattle on milking platforms must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2022 On the plains, dairy support cattle must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2025 On the plains, deer must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	1 July 2025 On the plains, beef cattle must be excluded from permanently flowing waterways over 1 metre wide, and lakes and wetlands	Plains 0-3°
1 July 2020 On the plains, pigs must be excluded from all permanently flowing waterways, including waterways under 1 metre wide, and lakes and wetlands	1 July 2020 On the plains, dairy cattle on milking platforms must be excluded from all permanently flowing waterways, including waterways under 1 metre wide, and lakes and wetlands				

New national guidelines will likely become legislation in the near future based upon slope thresholds. This possibility has influenced our position that stock exclusion rules (cattle / deer) should apply where:

- 1 - To any flowing waterways that have formed beds where slope is less than 15+ degrees, and**
- 2 - To 'Dairy accord' waterways above 15 degrees and the stocking rate is 18+ stock units (≈1000 kgLW/ha) .**



Livestock exclusion above 15 degree slope

A pragmatic solution based upon risk and a strong desire to get some runs-on-the-board



**Adopting Dairy accord waterway definition.
Parity with dairy stocking rates (cattle and / or deer)
Where the stocking rate for the farm or part of
 ≥ 18 su/ha or ~ 1000 kgLW /ha applied during
the winter period 1st May – 30th September
Note livestock exclusion will only be
applied on the farm or part of
above stocking rate threshold**



Farm Environment Plans
Livestock exclusion
Waterway type and size
Risk to ecosystem health
Unintended consequences



Hey Dad - Can we go for a swim?
You must be joking - its in flood, too cold and dangerous

Swimmability – managing risk

1 st Nov – 30th April	260 / 100ml
≤ 20 th top percentile flow	550 / 100ml



What does Success look like?

Prosperous, resilient, vibrant rural communities

Acknowledgement that primary land use is proper and justified

Fairness and Equity for all land users and owners

Excessive contaminant loss mitigated at source by those culpable

It should be the owners prerogative to choose land use provided it has a good fit within capability to support ecosystem health limits

Farming that Fits the Land

