

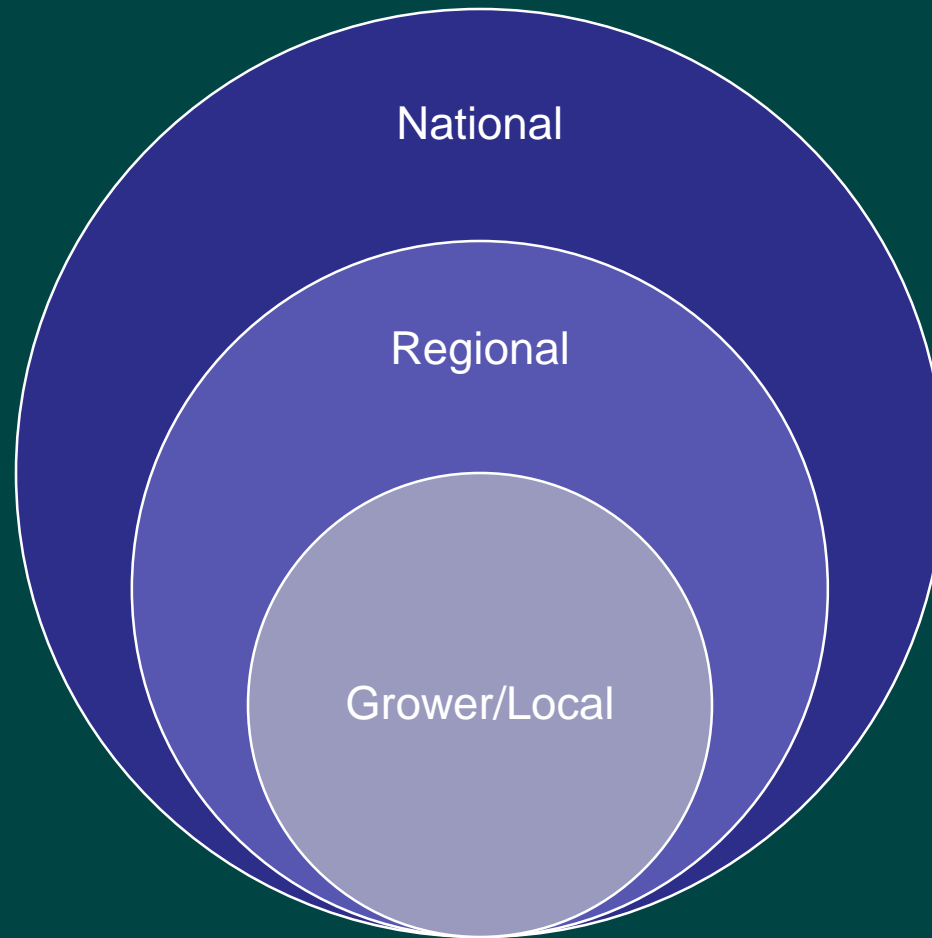


Potatoes NZ Agronomists Forum 28 August 2014  
Angela Halliday

# What's happening in natural resources?








- National Policy Statement
- Regional Planning Processes
- Current focus
- Codes of Practice and Farm Environment Plans
- Research required...
- Where to from here

# Freshwater



# NPS – National Policy Statement for Freshwater

- National bottom lines
- Community decides
- Economic and environmental decisions – cultivation and irrigation a ‘value’
- Freshwater management units ? Exemptions ?

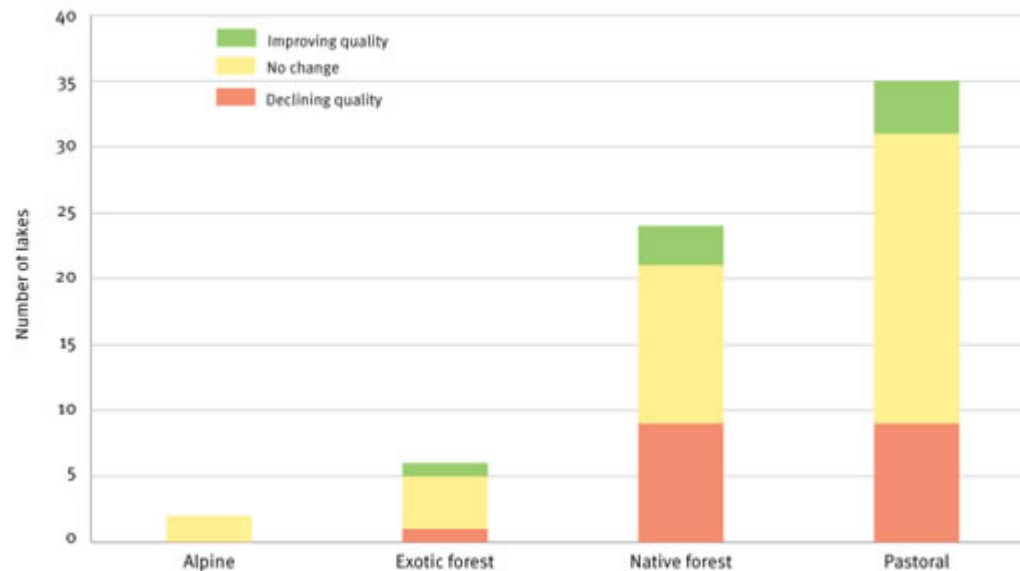
National Objectives Framework		
VALUE	ATTRIBUTES	STATES (Freshwater objectives)
 Human health	 E.Coli ( <i>bacteria</i> )	<b>A</b>  Suitable for swimming
	 Cyanobacteria – Planktonic ( <i>toxic algae</i> )	<b>B</b>  Generally suitable for swimming
National bottom line		<b>C</b>  Suitable for boating and wading
		<b>D</b>  Unacceptable risk to human health

## In the regions at the moment.....

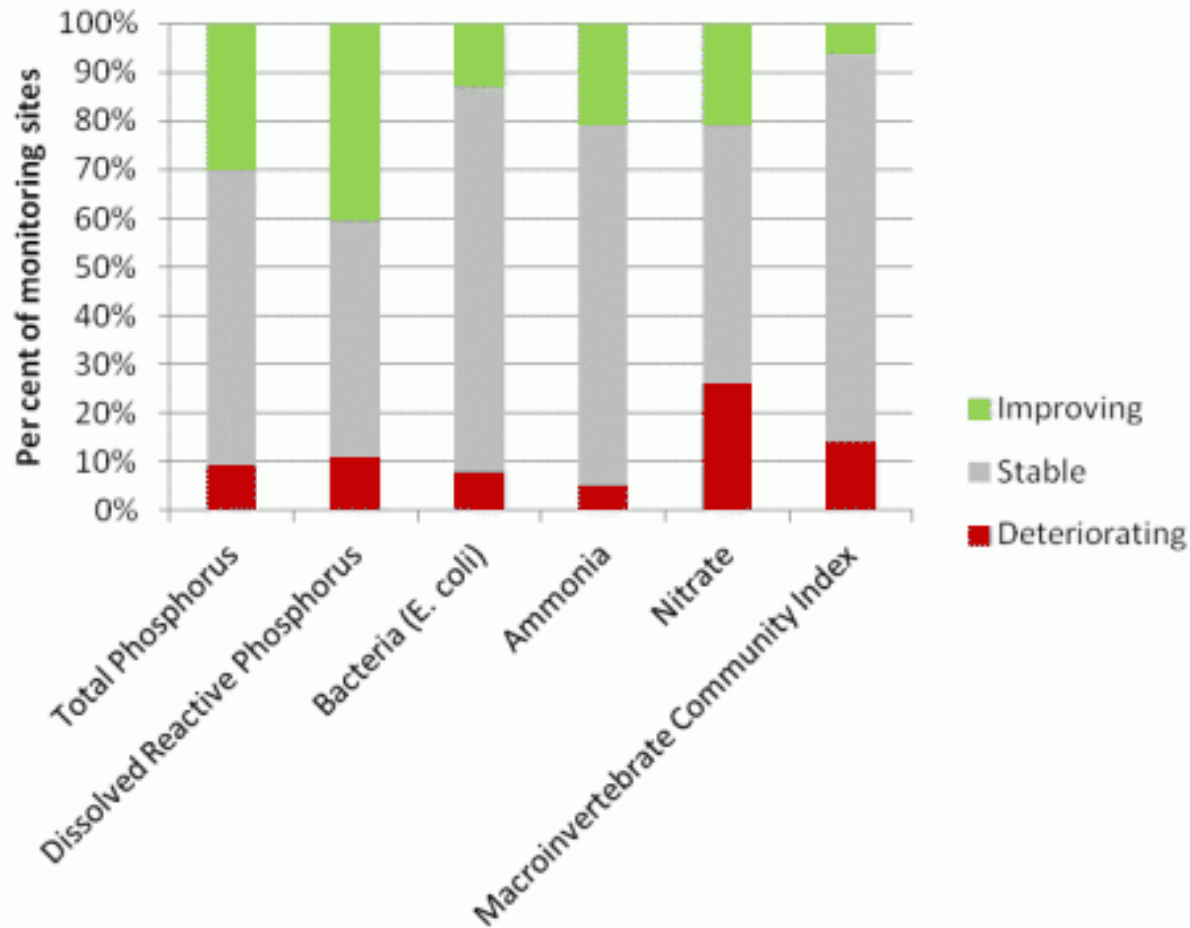
- Nitrogen is the hot topic
- P and sediment are not far behind!

## Lakes (68)

Trends in nutrient levels (Trophic Level Index) of monitored lakes and land cover, 2005-09



# Rivers 10 Year trend analysis



## Regional Plans

Horizons One Plan

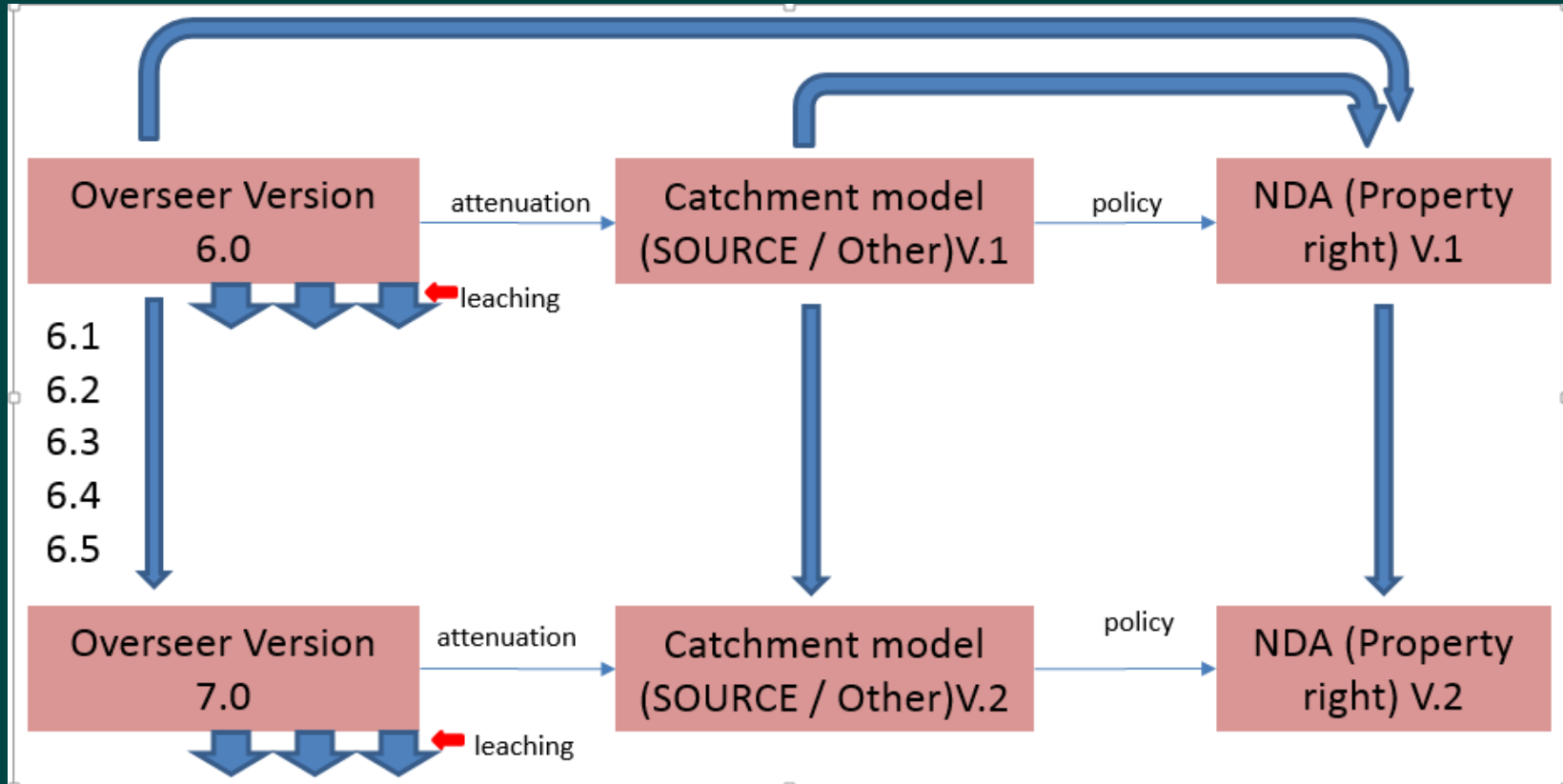
Tukituki – Hawkes Bay

Gisborne – due out soon...

Tasman – currently in mediation

Selwyn Waihora – evidence due tomorrow!

# Allocation of N using Overseer





# Code of Practice for Nutrient Management

- Focussed on nitrogen (P and Sediment covered in erosion and sediment control guidelines)
- Follows a risk based framework
- GMP and BMP's developed for each stage of the planting cycle

## Outline

1. Introduction
2. Risk management approach
3. Understanding nutrient loss
4. Information to help decision making
5. Assessing risk
6. Applying GMP and BMP
7. Record keeping

## Risk based approach to nutrient management

### 1. Understand how nutrient loss occurs and potential risk

Knowledge of movement of nutrients through soil and water

Factors contributing to nutrient loss

### 2. Information to help decision making

Soil tests

Paddock history

Crop history

Rotation and crop selection

Rainfall

### 3. Assessing the risk

Using the risk template identify the risk for each contributing factor

Determine the level of risk for the operation

### 4. Identify and implement GMP's and BMP's to address risks

Pre-planting

Planting and Ground Preparation

Post planting

Harvest and post-harvest

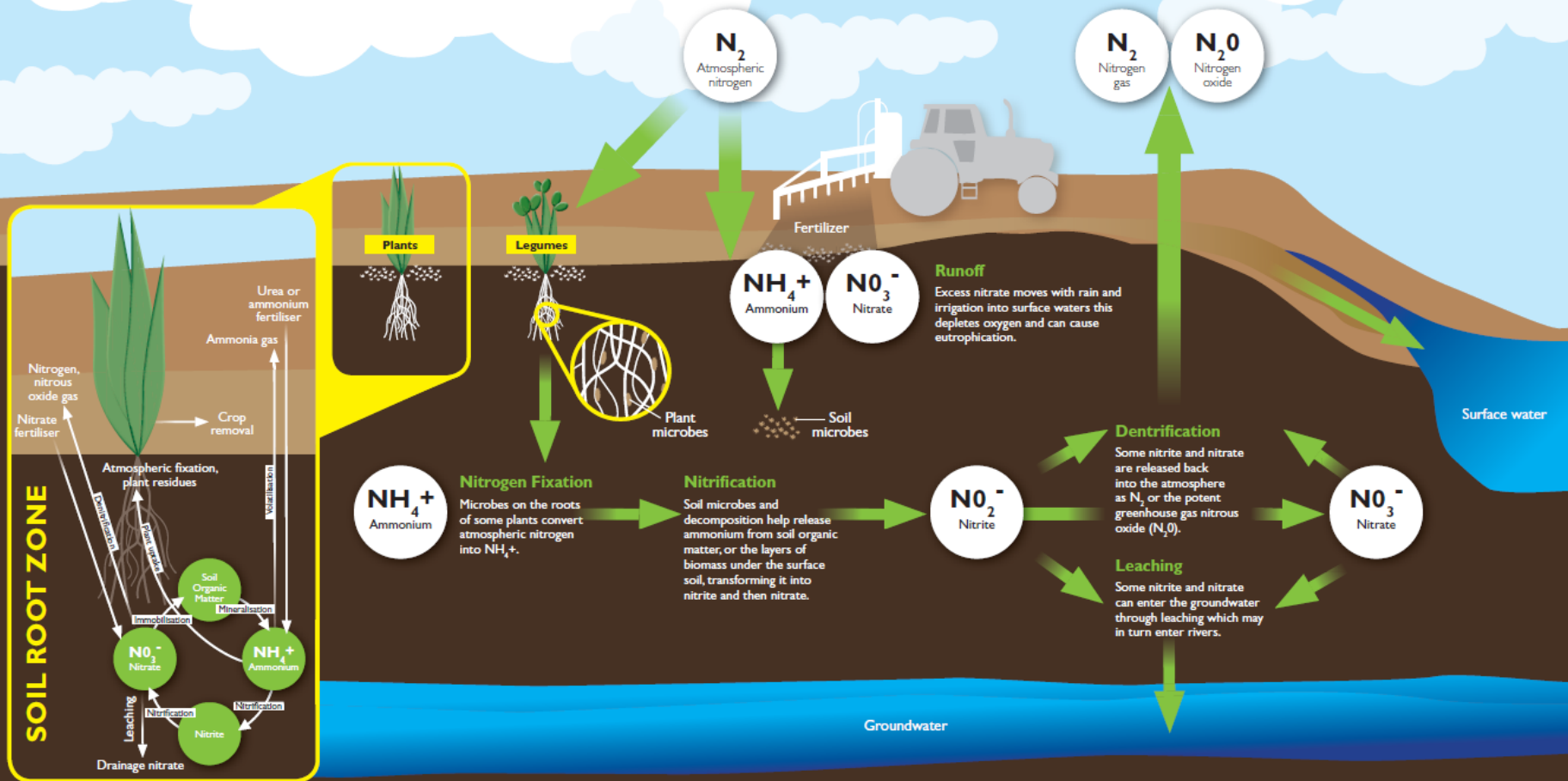
Other BMP's and GMP's

### 5. Maintaining records

Records should be kept to verify actions taken

# The Nitrogen cycle

When it comes to agriculture, the primary sources of nitrogen in the soil are atmospheric nitrogen ( $N_2$ ) and fertilizer, created when manufacturers convert  $N_2$  into ammonium ( $NH_4^+$ ) and nitrate ( $NO_3^-$ )



Information.....

## Knowing your Paddock

- Rainfall
- Soil type
- Available N
- Erosion risk
- Irrigation

## Knowing your crop/rotation

- Crop selection
- Desired yield
- Market constraints
- Nutrient requirements

## Assessing the risk

High/med/low weigh up all factors

Very high risk – light soil type, high winter rainfall, high residual N, shallow root vegetables, sloped ground etc.

## GMP and BMP for each stage identified

- Pre-planting
- Planting
- Post-planting
- Harvest and Post-harvest

### Management practices for the Pre-planting stage

	Management practice	Description
Cover cropping	Use of Cover crops ( <u>greenfeed</u> , oats, mustard, other biological activates cover crops) reduces nutrient use. "Grassing down" increases organic matter.	Use of cover crops is a management mechanism to take up nitrogen in the soil and also increase organic matter. Depending on the specific cover crop it may be ploughed back into the soil to improve soil quality and long term production or sprayed and another crop direct drilled into the paddock. Refer to the Guidelines for sediment and erosion control for details on cover crops.

# Tailored plan – for consent

- Good Management Practices
- Best Management Practices

## Pre-planting

	Management practices	Grower Adoption Y/N	Rationale/reasons	Consultant comments
<b>Cover cropping</b>	Use of Cover crops (greenfeed, oats, mustard, other biological activates cover crops) reduces nutrient use. "Grassing down" increases organic matter.	Y / N		
<b>Assessing soil</b>	Estimate the residue from the previous crop Carry over nitrogen – crop not yielding full potential (Crop poor utiliser of N – eg onion – shallow root – require large amounts but don't use it all – don't reach potential if not applied)	Y / N		
	Soil testing is conducted on each paddock every year when a crop is going on.	Y / N		
	Soil testing is conducted every year based on GPS mapping	Y / N		



## Where are we at????

Aspect	Problem ID	Science / Tools	System	Audit / report
Nitrogen	✓	W	W	W
Phosphorous	✓	✓	✓	W
Soil Cons.	✓	✓	✓	W
Water eff.	✓	✓	W	
<u>Agrichems</u>	✓	✓	✓	✓
Biodiversity	W	W		

## Research – where to from here

- HIT take 2 – quantifying the effectiveness of sediment and erosion mitigation
- Crop requirements RB209 for New Zealand
- Quicktest strips informing growers on farm

Questions???

