

Greater Heretaunga and Ahuriri
Land and Water Management
Collaborative Stakeholder (TANK)
Group



**Meeting 32:
7 September 2017**

Karakia

Karakia

Ko te tumanako

Kia pai tenei rā

Kia tutuki i ngā wawata

Kia tau te rangimarie

I runga i a tatou katoa

Mauriora kia tatou katoa

Āmine

Water is a taonga and the purpose of our meeting is to.....

Agenda

- 9:00am Notices, meeting record
- 9:30am Managing soils and diffuse pollution (farm systems) – Xan Harding
- 10:15am Sediment management proposal– Peter Kay/Ivan Knauf (Farmer Ref Grp)
- 12:30pm **LUNCH**
- 1.00pm Open plenary session
- 2:30pm **COFFEE BREAK**
- 3:00pm **Cont....**
- 4:00pm **CLOSE MEETING**

Meeting objectives

1. Decide on the sediment management framework from Farmer Reference Group and next steps
2. Plenary discussion – topics determined by TANK members

Engagement etiquette

- Be an active and respectful participant / listener
- Share air time – have your say and allow others to have theirs
- One conversation at a time
- Ensure your important points are captured
- Please let us know if you need to leave the meeting early

Ground rules for observers

- RPC members are active observers by right (as per ToR)
- Pre-approval for other observers to attend should be sought from Robyn Wynne-Lewis (prior to the day of the meeting)
- TANK members are responsible for introducing observers and should remain together at break out sessions
- Observer's speaking rights are at the discretion of the facilitator and the observer should defer to the TANK member whenever possible.

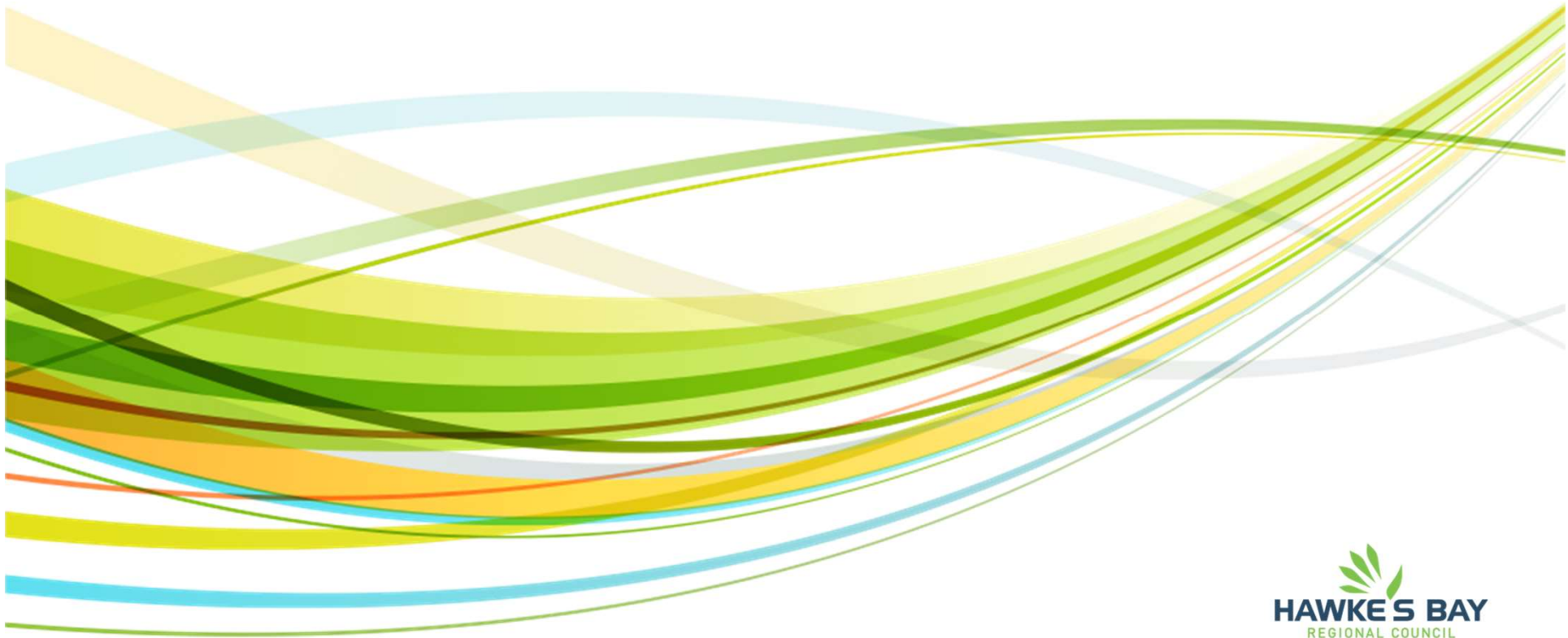
Meeting Record – TANK Group 31

- Matters arising
- Action points

Action points

		Person	Status
31.1	HBRC Scientists to consider whether modelling can be done on the effect of temperature on oxygen levels	Thomas Wilding	
31.2	Water Augmentation group to bring back future irrigation demand to the TANK Group for consideration.	WAG	
31.3	Water Augmentation group to consider possible options to address water augmentation needs	WAG	
31.4	Provide a verbal update on recent TAG meeting at next TANK Group meeting	Iain Maxwell	28 Sept

Farm Systems and Environmental Performance



EAWG – Farm Systems

TANK Meeting 24 action point; *to investigate inserting biological farming and ecological economics expertise into the Economics Assessment Working Group*

EAWG meeting 4;

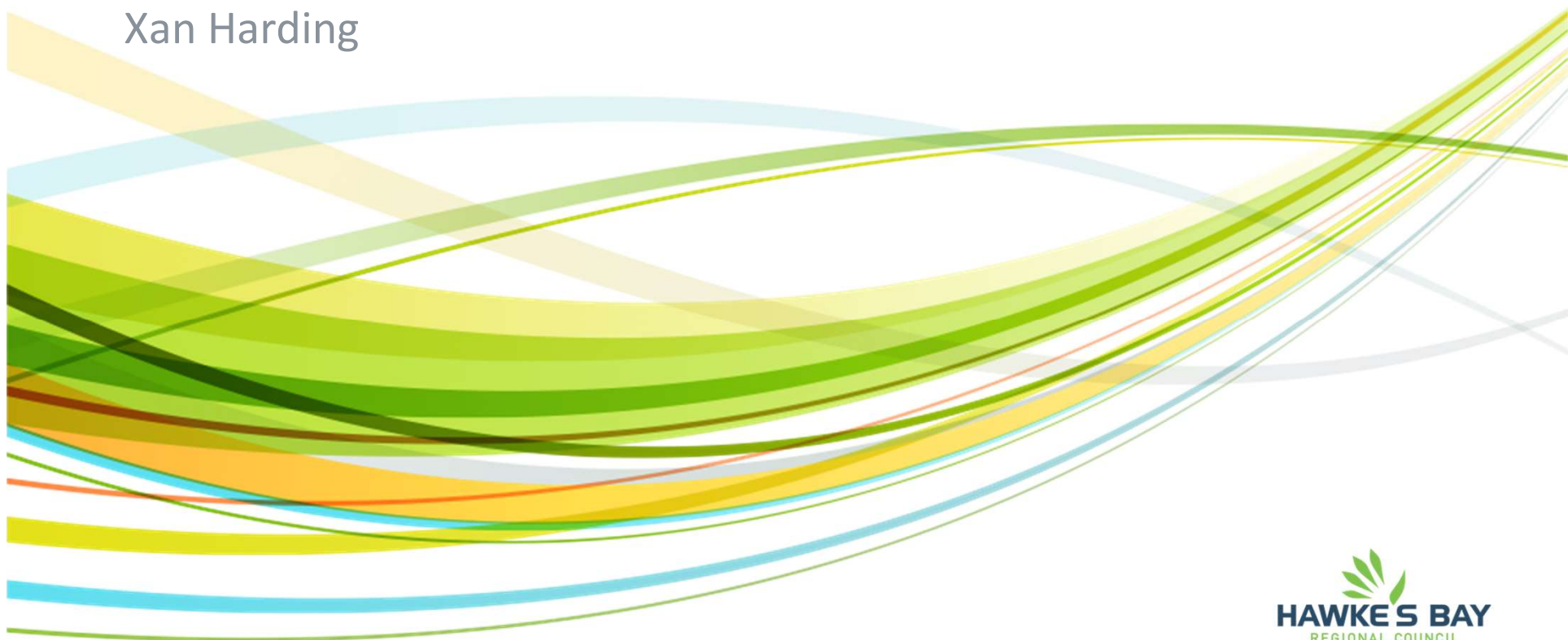
Action Point; Council staff will work with industry leaders across a range of farm systems to describe/list common principles and good management practices that will assist in avoiding remedying or mitigating adverse effects on land and water resources

EAWG recommendations

1. Targeted use of resources – focus on key actions for best effectiveness
2. Soil health monitoring essential component
3. Industry involvement in understanding good management practice and ensuring adoption of it
 - Including development of ‘bottom line’ performance standards
4. Keeping up to date with new science, guidelines and research

Farm Systems and Environmental Performance

Xan Harding



TANK

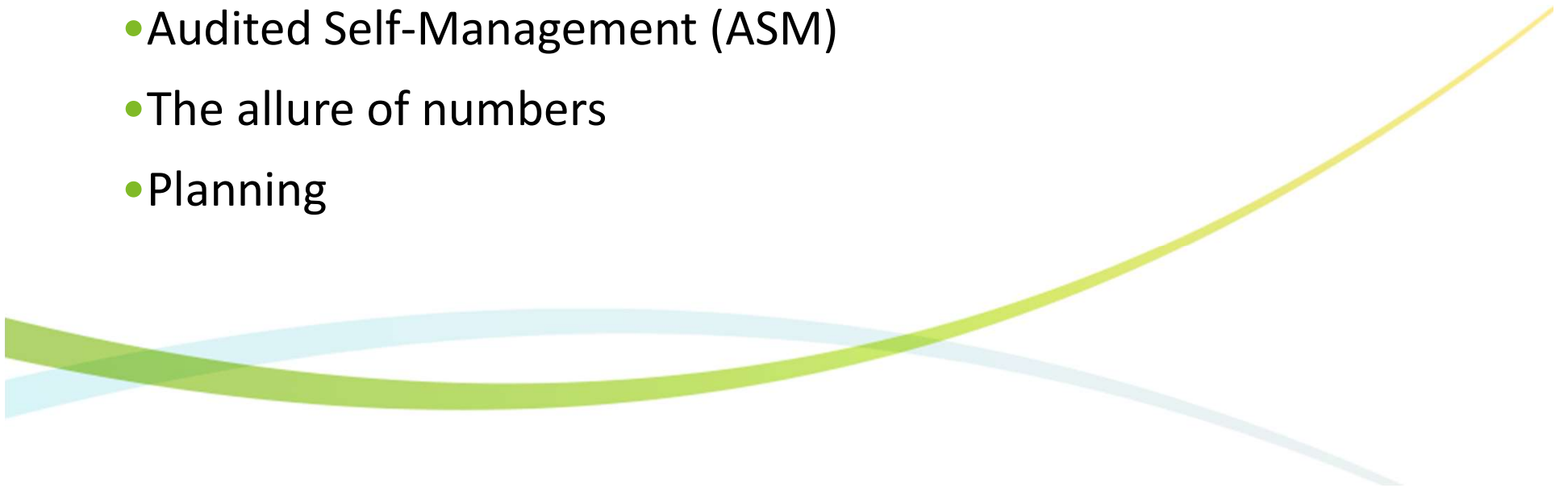
Farm Systems and Environmental
Performance

Or Managing Soils and Diffuse Agricultural
Pollution



Overview – Farm Environmental Systems

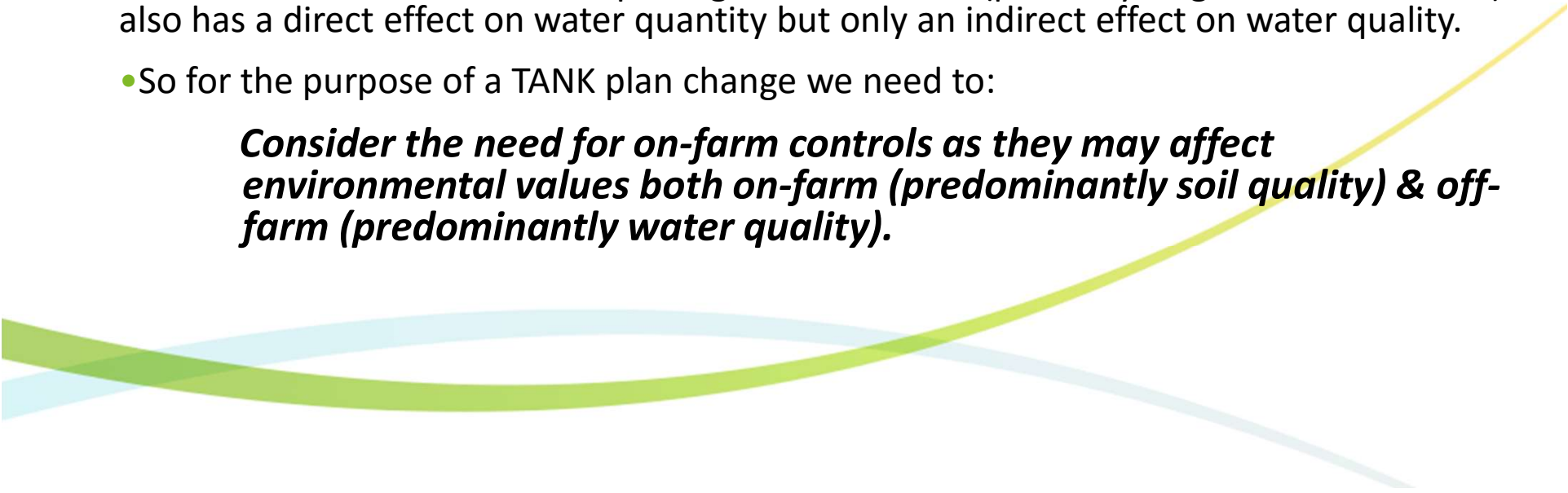
- Problem definition
- Soil quality
- Water quality
- Good Management Practice (GMP)
- Audited Self-Management (ASM)
- The allure of numbers
- Planning



Farming Systems - Problem definition

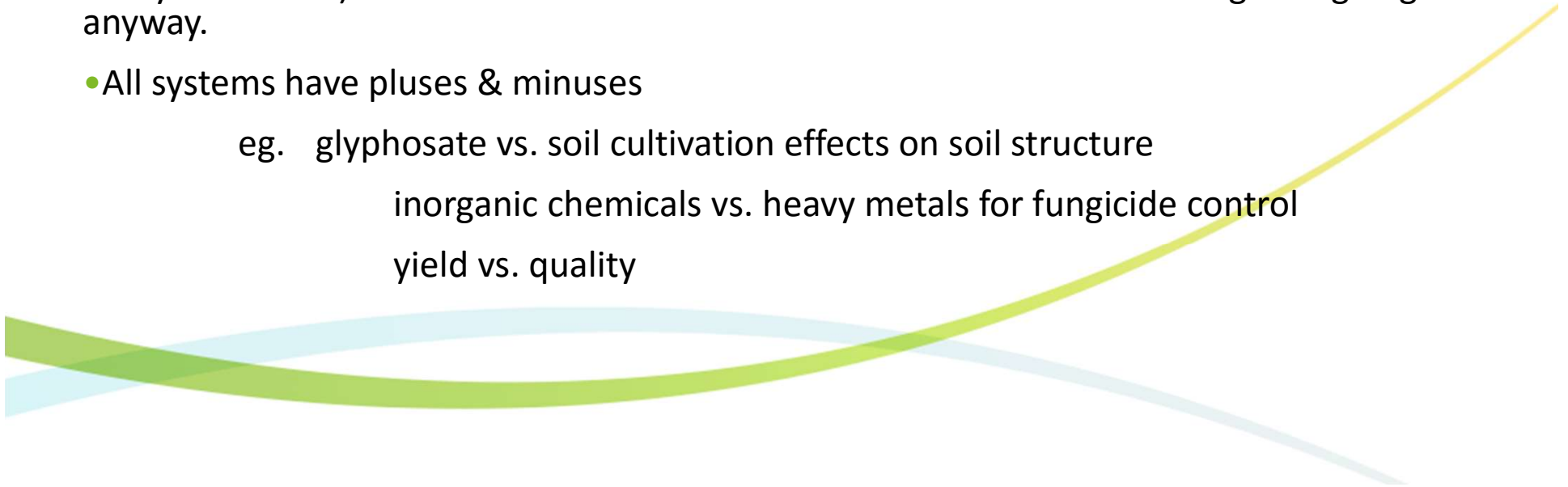
- Every human activity of any scale tends to have both local & distant effects.
- By simple virtue of the scale of farming as a land-use in TANK, farming has a disproportionate beyond-boundary impact on our local environment.
- Farmers are necessarily very attuned to their local environment and the effect of their farming systems within their boundary (eg. on their soil) but beyond-boundary effects are less visible & less obviously attributable to their practices.
- Science informs us that all farming systems (and natural systems) have an incremental effect on the surrounding environment. Predominantly we think of the effects in terms of N & P nutrients, sediment & pathogens. Water use (primarily irrigation, stock water) also has a direct effect on water quantity but only an indirect effect on water quality.
- So for the purpose of a TANK plan change we need to:

Consider the need for on-farm controls as they may affect environmental values both on-farm (predominantly soil quality) & off-farm (predominantly water quality).

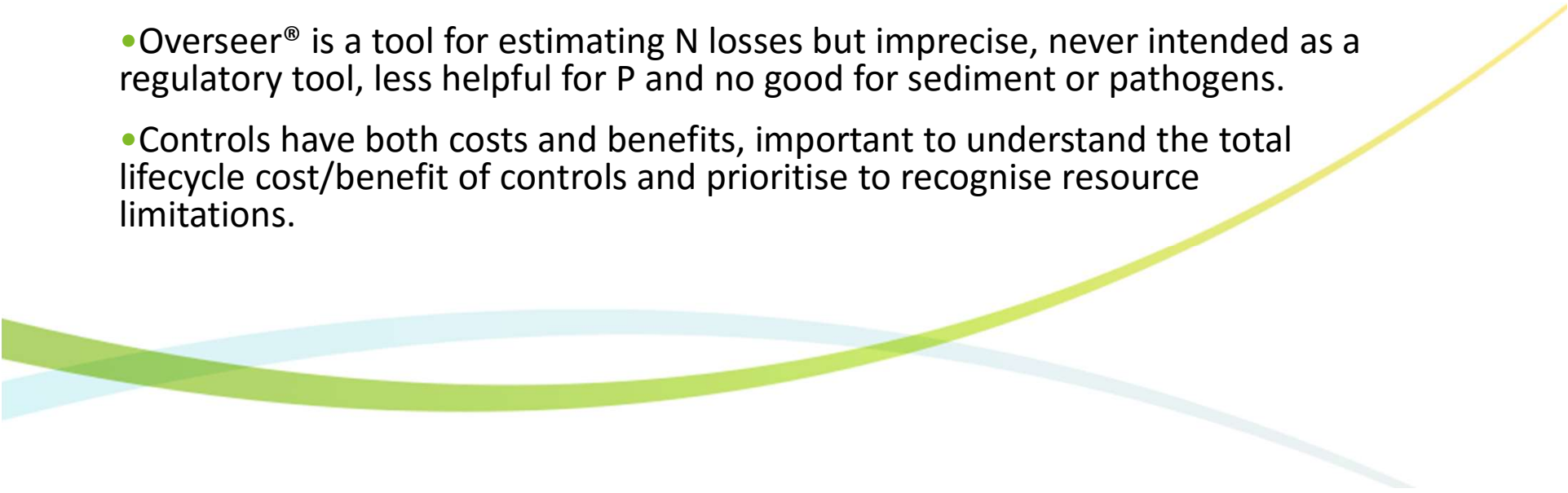


On-Farm..... Soil Quality

- EAWG has reviewed HBRC's current soil monitoring programme
- Data indicates that where soil is remaining on-farm, quality is stable overall.
- Changes in on-farm soil quality tend to be associated with cropping cycles and cropping farmers are highly attuned to managing this.
- Most immediate environmental improvement will come from retaining soil on-farm.
- Scope for GMP to improve both on-farm soil quality & soil retention.
- Potentially additional benefits to be had from changing farm practices (organics, biodynamics etc) but should be science & market-led and there is convergence going on anyway.
- All systems have pluses & minuses
 - eg. glyphosate vs. soil cultivation effects on soil structure
 - inorganic chemicals vs. heavy metals for fungicide control
 - yield vs. quality



Off-Farm..... Water Quality

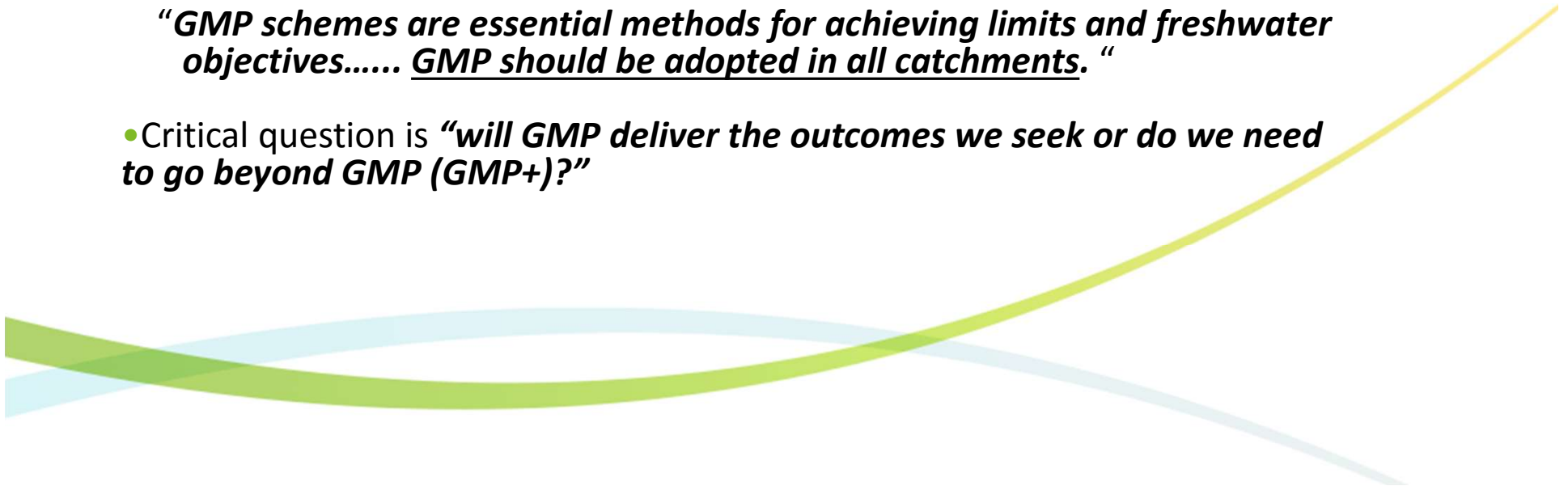
- Mainly concerned about off-farm N, P, sediment, pathogens and agrichemicals.
 - N losses driven by winter leaching, P losses via soil and leaching, sediment via erosion & runoff, pathogens via soil & runoff, agrichemicals via leaching and air (spraying).
 - For agrichemicals, RRMP already has rules for application & additional controls over unconfined aquifer, HBRC groundwater testing programme shows no issues but ***precautionary principle should apply & should pay particular attention to shallow groundwater as an indicator.***
 - Overseer® is a tool for estimating N losses but imprecise, never intended as a regulatory tool, less helpful for P and no good for sediment or pathogens.
 - Controls have both costs and benefits, important to understand the total lifecycle cost/benefit of controls and prioritise to recognise resource limitations.
- 

Good Management Practice (GMP or GAP)

- These are industry-developed codes of good farming practice for improved outcomes, usually triple bottom line of People, Planet & Profit, driven by customers.
- Programmes are industry-specific but some pan-industry good practices have also been identified and still being developed (eg ECAN).
- When widely adopted, they may be sufficient by themselves to address existing environmental concerns.
- LAWF endorses GMP:

“GMP schemes are essential methods for achieving limits and freshwater objectives..... GMP should be adopted in all catchments.”

- Critical question is ***“will GMP deliver the outcomes we seek or do we need to go beyond GMP (GMP+)?”***



Audited Self-Management

- ASM systems are codes of practice (eg. GMP), authenticated by an audit function.
- Originated in the Australian mining industry, now has **widespread acceptance internationally** as an effective approach to triple bottom line accounting.
- LAWF endorses ASM:

“Audited self-management (ASM) schemes transfer day-to-day management responsibility to users under agreed terms, and subject to transparent audit (see LAWF1). ASM can be used across most management methods (regulatory and non-regulatory) and is a key tool in implementing GMP”.

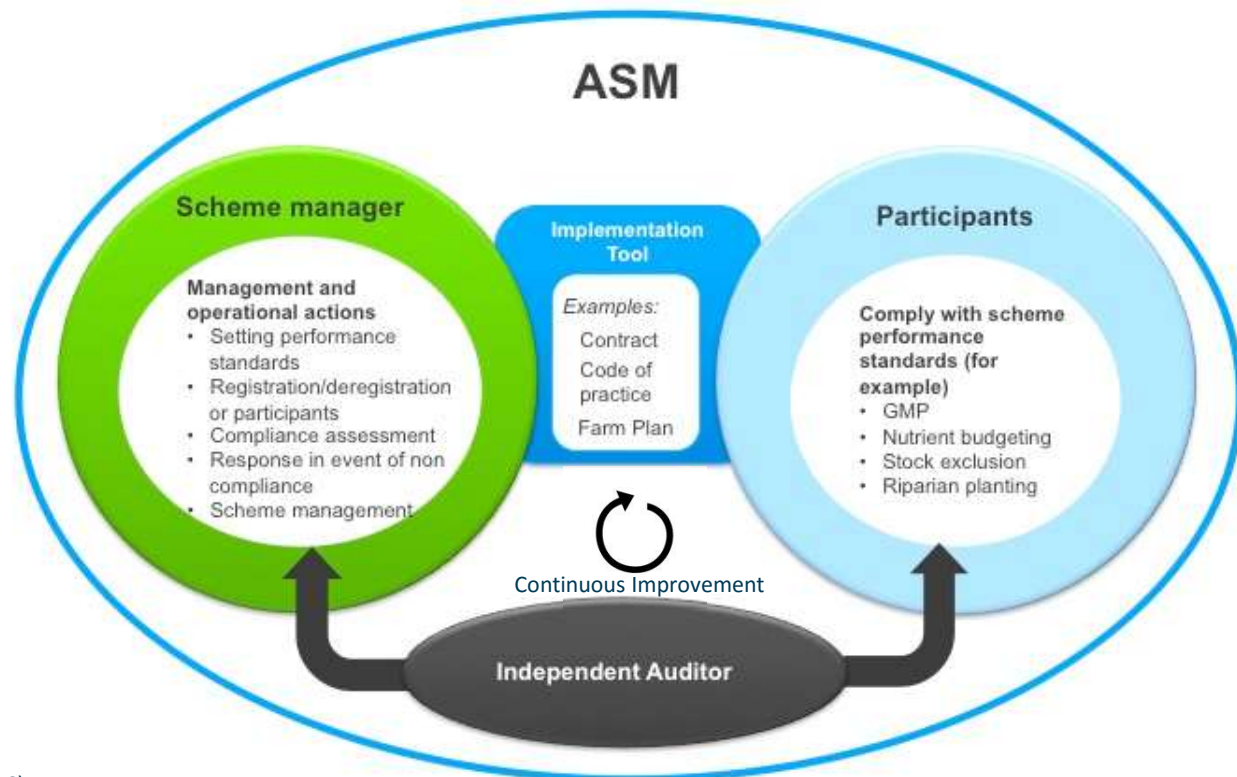
“ASM schemes create a shift in behaviour from one of strict compliance (i.e. do the minimum required) to one of performance where greater ownership (by individuals and others) of environmental issues results in action greater than the minimum required. There are a number of inherent attributes of ASM that facilitate behaviour change including ownership of the issues and solutions, support structures such as one-to-one guidance, peer support, and adaptive management.”

- HBRC PC5 recognised use of ASM as an Objective:

“ Fresh water and the effects of land use and development are managed in an integrated and sustainable manner which includes ...8. recognising the benefits of industry good practice to land and water management, including audited self-management programmes;”

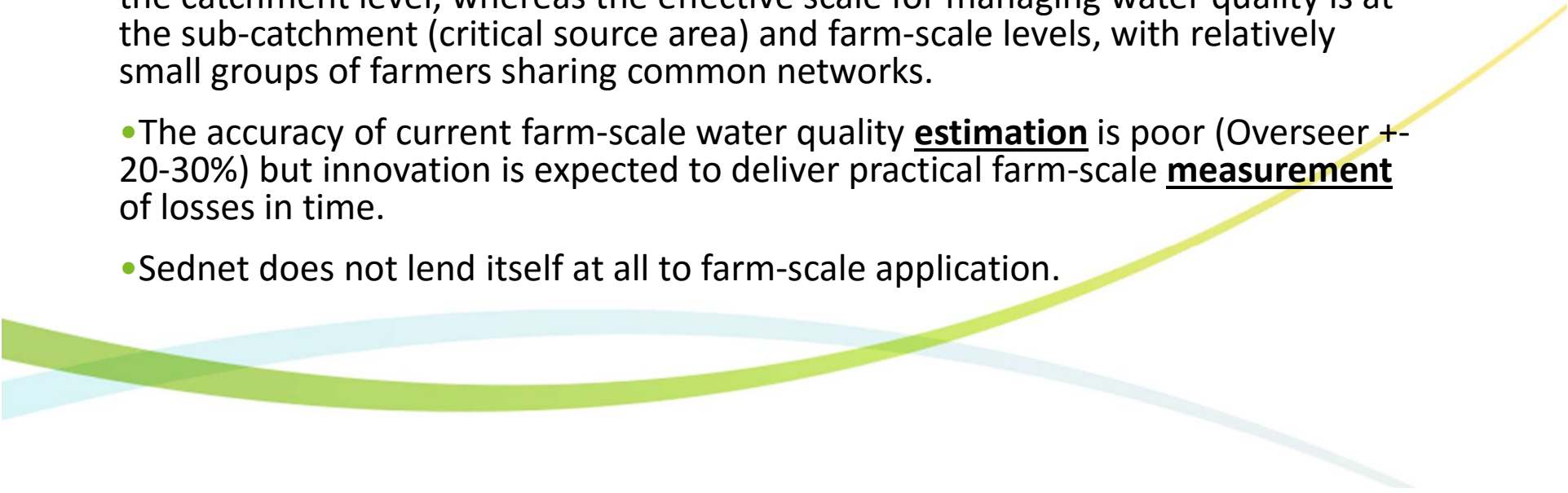
Audited Self-Management

- ASM is applicable to a wide range of groupings, eg. an industry group, a catchment group, an irrigator group.
- Key components are a set of governance rules, members, a scheme manager, a code of practice, an independent auditor and communication protocols.
- Examples – Eurepgap, NZGAP, SWNZ



1. Adapted from Willis, G. (2016). Independently audited self-management: An overview of the use of primary sector environmental management programmes within the Resource Management Act framework. Unpublished.

The allure of numbers

- It is tempting to set out to govern by hard numbers generated by scientific models but this approach has limitations. Models are just that, useful approximations of the real world.
 - Science should be seen as informing decision making, not determining it.
 - NPS-FM requires us to adopt catchment nutrient numerical limits but it is important to understand their limitations. Hard numbers connected to resource constraints drive avoidance behaviour and legal challenge, generating an ever-increasing complexity which can nullify the perceived initial advantage of setting a numerical limit (viz. Hurunui, Manawatu now).
 - Water quality limit calculations are inherently imprecise and only appropriate at the catchment level, whereas the effective scale for managing water quality is at the sub-catchment (critical source area) and farm-scale levels, with relatively small groups of farmers sharing common networks.
 - The accuracy of current farm-scale water quality **estimation** is poor (Overseer +/- 20-30%) but innovation is expected to deliver practical farm-scale **measurement** of losses in time.
 - Sednet does not lend itself at all to farm-scale application.
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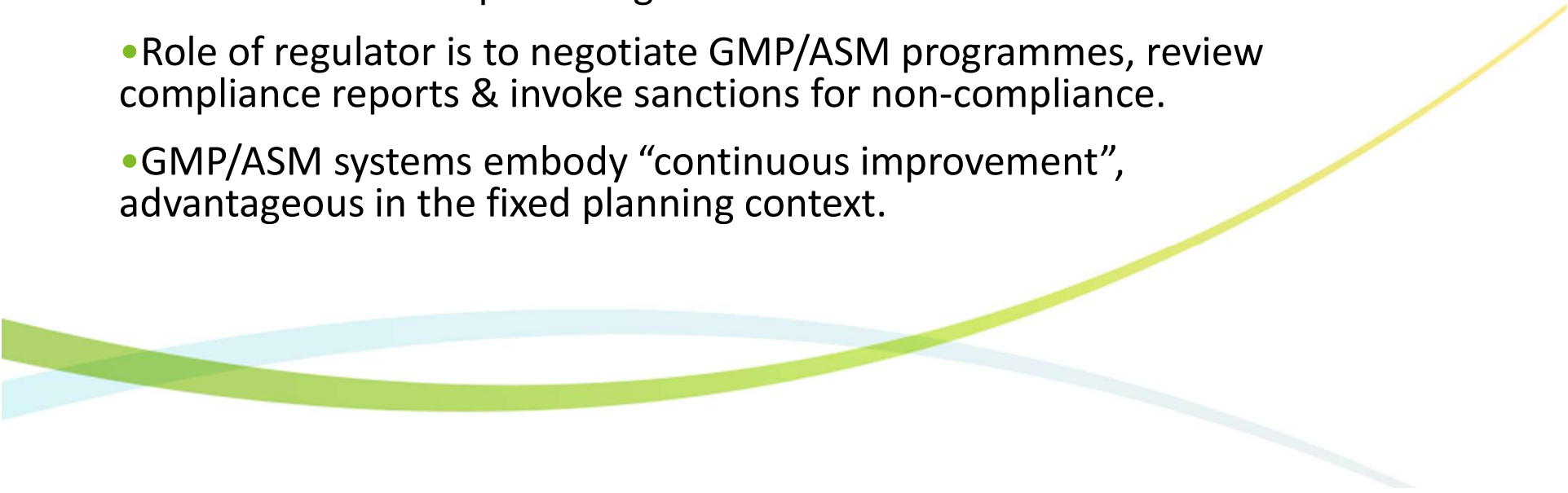
Working with farmers – what works?

- Farmers work with gut feeling, observation, questioning assumptions and common sense. Science however is heavily quantitative. Similar contrast to matakauranga maori!
- Research shows that success requires common understanding of cause, ownership of the problem and a climate of trust.
- Vital to take the time with farmers to get agreement about what the ‘problem’ is.
- Environmental research shows that working at the right scale is critical for success – the sub-catchment model is the most effective.
- Science is an ongoing process, need to engage with the community and get acceptance of the need to take action regardless of science gaps.
- Its not just about the numbers, its about the people!

He Tangata, He Tangata, He Tangata

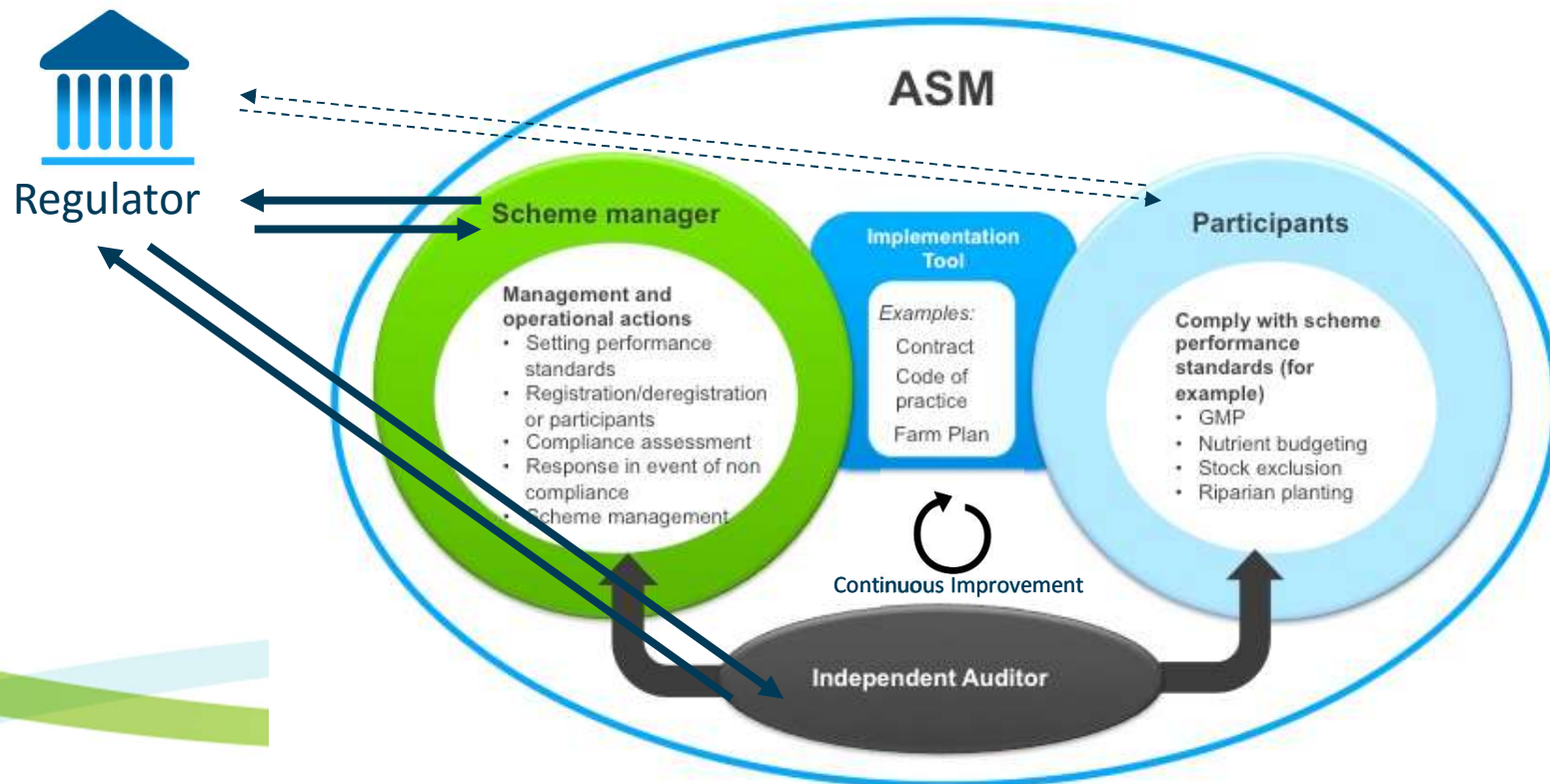


Planning and GMP/ASM

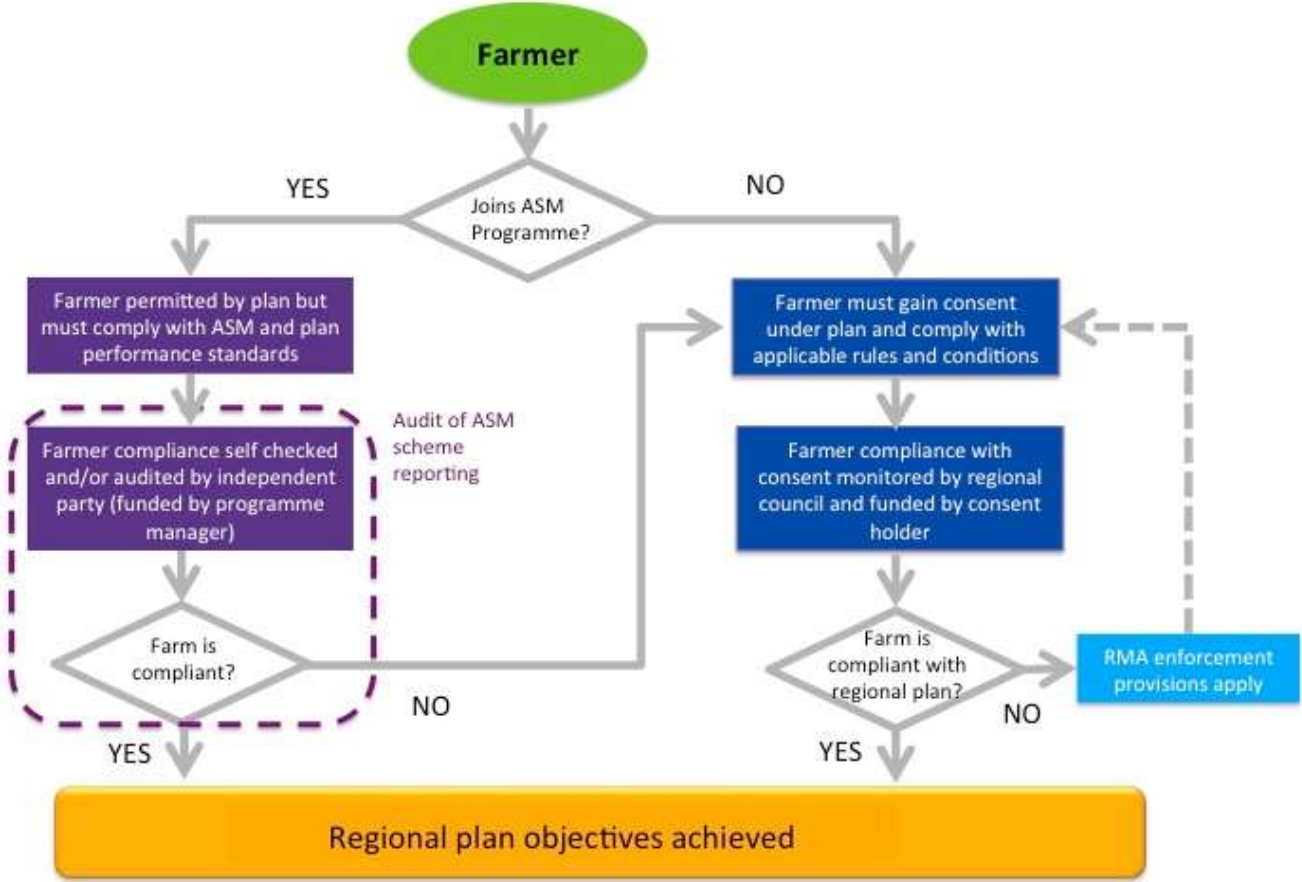
- Start with an environmental gap analysis.
 - Determine what benefits could be expected from adopting GMP/ASM and what level of assurance is required based on risk of failure.
 - GMP should be a bottom line for permitted activities. GMP+ may be required if GMP won't be enough by itself.
 - ASM is the next step where greater assurance is desired.
 - Role of regulator is to negotiate GMP/ASM programmes, review compliance reports & invoke sanctions for non-compliance.
 - GMP/ASM systems embody “continuous improvement”, advantageous in the fixed planning context.
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Planning and GMP/ASM

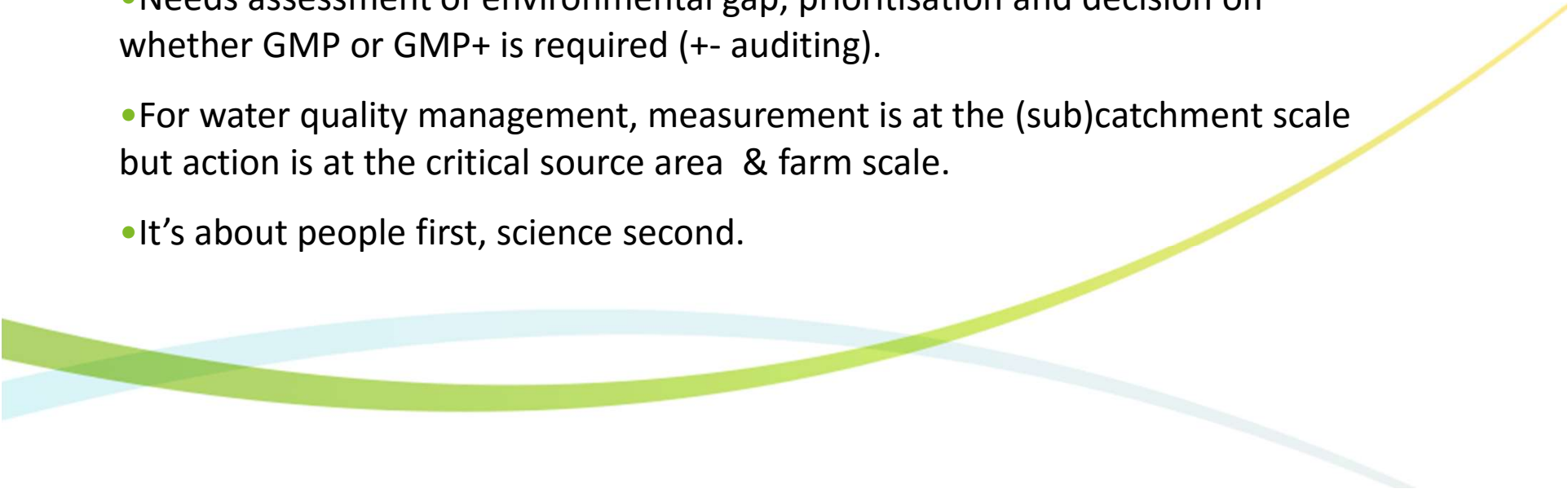
- ASM encourages problem ownership and going beyond compliance.
- It allows the regulator to be more efficient, by focussing on how the scheme operates, is audited and how non-compliance is resolved, minimising the need for ongoing dialogue with individual farmers.



Relationship of ASM to plan rules (example only)



Recap – where GMP fits into planning

- GMP will deliver environmental gains, builds community ownership not just compliance and suits sub-catchment scale collective responses.
 - ASM provides an additional level of assurance from the audit function and drives deeper community ownership.
 - Both approaches incorporate continuous improvement for growing benefits over time.
 - Needs assessment of environmental gap, prioritisation and decision on whether GMP or GMP+ is required (+- auditing).
 - For water quality management, measurement is at the (sub)catchment scale but action is at the critical source area & farm scale.
 - It's about people first, science second.
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Acknowledgements/Further reading

Duncan, R. (2014) Regulating agricultural land use to manage water quality: the challenges for science and policy in enforcing limits on non-point source pollution in New Zealand. *Land Use Policy*, 41: 378-387.

Duncan, R. (2016) Ways of knowing: out-of-sync or incompatible? framing water quality and farmers' encounters with science in the regulation of non-point source pollution in the Canterbury region of New Zealand. *Environmental Science & Policy*, 55(1): 151-157.



Meeting the Sediment Loss Challenge

Peter Kay
Ivan Knauf

Mary-Anne Baker

What we are going to cover today:

1. Introduction to the Framer Reference Group Proposal
2. Overview of the pre-circulated proposal
3. Feedback and questions
4. Decision sought;

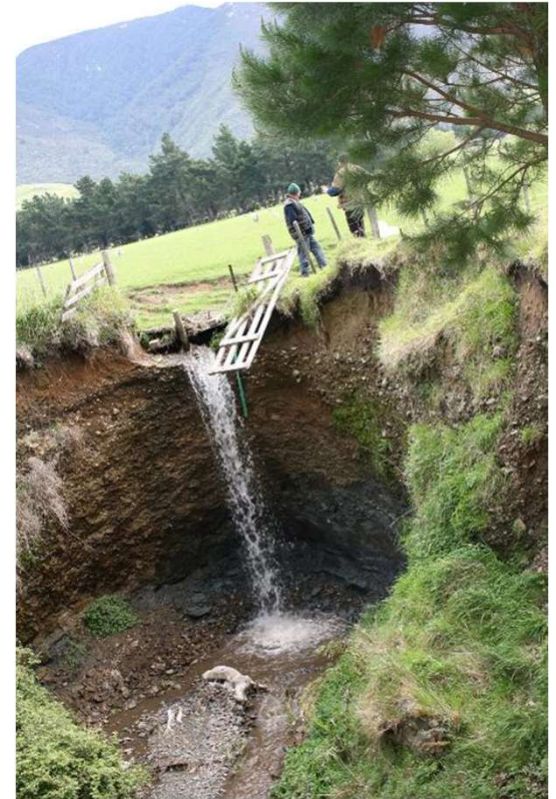
Agreement that the proposal provides a good **management framework** for working towards water quality objectives; noting that:

- Some details still to come (e.g. dates, thresholds and \$\$ informed by economic analysis)
- Water quality objectives still to be agreed (mtg 33)

The Sediment Challenge in TANK catchment

The TANK group sought further information about the options for meeting a sediment loss reduction target of 10 – 30% (based on the SedNet model)

- Managing sediment loss is complex
- TANK Group members have a choice about the balance of mechanisms for achieving the objectives (e.g. farmer-led or council regulation)
- Council is currently thinking about its approach for achieving outcomes across the region (i.e. how fast and how much the Council should invest to make change happen) through LTP process



Managing Sediment Loss to Meet Water Quality Objectives

Issue;

Sediment loss impacts on aquatic ecosystem health and water quality.

It is difficult to regulate for water quality related to sediment loss because the risk of sediment loss varies considerably at a property or even paddock scale.

However, good environmental performance can be specified by industry and in relation to some specific activities

Options for the Management Framework

Option 1. Management through industry or farm collectives to meet specified environmental outcomes using GMP/Audited self management by sector or group.

Option 2. One rule approach for all (e.g. Tukituki Plan Change model requiring farm plans by set date).

Option 3. A range of activity specific rules setting minimum performance standards

Managing Sediment Loss to Meet Water Quality Objectives

Proposal;

Option 1 is proposed by the Farmer Reference Group

Implementation;

Implementation detail still to be developed

Likely to initially require significant effort by industry and council to support groups and develop their environmental management strategy or programme.

Big-picture

This is a draft package of policies and rules for the RRMP proposed by the farmer reference group on how to achieve sediment reduction and water quality targets

Key features:

- Builds on the collaborative model for implementation of the Plan
- Allows for innovation
- Monitored and auditable
- Outcomes to be related to timeframes
- Targeted (based on priority catchments/stressors/pathways)
 - Part of EAWG recommendation
- Farmer-led
- Allows flexibility and choices
- Acknowledges responsibility and commitment

Proposed Management Framework

1. Responsibilities understood and described
 2. Good farm management practices are developed in relation to environmental outcomes sought
 - Some already known
 - Others in development
 - Some not yet started
- The EAWG recommendation is to continue this work

NATIONAL POLICY STATEMENT

for Freshwater Management 2014

issued by notice in gazette on 4 July 2014



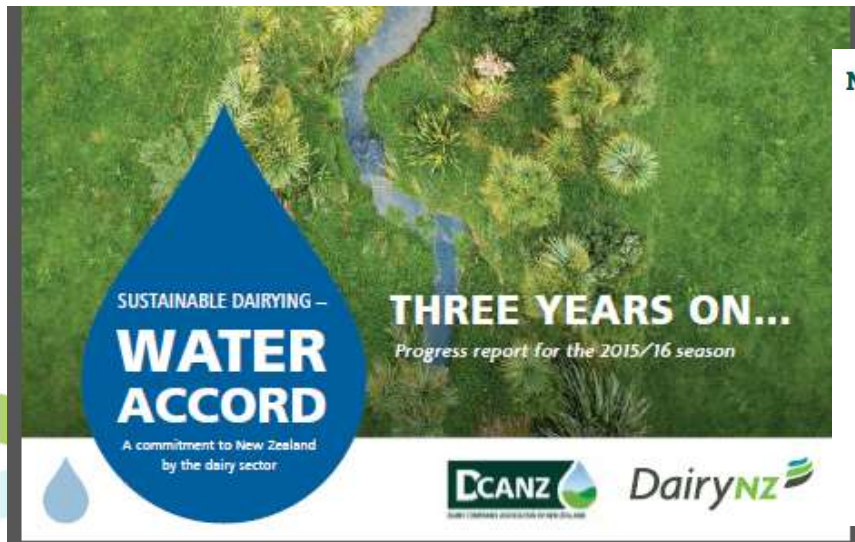
Erosion & Sediment Control Guidelines for Vegetable Production

Prepared by Andrew Barber for:
Horticulture New Zealand
June 2014



Proposed Management Framework

3. Industry programmes, collectives and farm plans will identify good farm practices
- Good practice applicable to specific industry and land use types
 - Good practice in relation to specified land use activities - good practices apply to all



NZGAP promotes the safe and responsible production of fruit and vegetables in New Zealand



Food safety

We help prevent food safety issues including food illness, harmful contamination and agrichemical residues.



Environment

We actively promote sustainable farming practices including the protection of soil, water and natural resources.



Social practice

We are committed to protecting the welfare and safety of all workers in the farming and growing industries.

4. Landowners supported by industry as well as council in meeting objectives for water quality/ aquatic ecosystems;
 - Information
 - Incentives/subsidies for specified works where there are higher erosion risks and mitigation costs
 - Monitoring
 - Further research/investigation

5. Required responses/ practices identified at property scale



Proposed Management Framework Industry or Collective Programmes

6. Allows collective effort to meet water quality outcomes sought
 - By industry
 - By location/catchment

7. Programmes need to include
 - specific requirements at industry or catchment scale to meet relevant water quality objectives
 - terms of membership
 - information requirements (including outputs from farm environmental plans)
 - reporting and auditing mechanisms

Supporting initiatives suggested by the EAWG



1. The soil health monitoring programme underpins understanding about the impacts of land use activities on soil health and potentially on environmental outcomes being sought through this plan
2. Other national investigation and research programmes will also contribute to better understanding and enable appropriate targeting of measures
 - Allows for adaptability and innovation

Options for the Management Framework

Option 1. Management through industry or farm collectives to meet specified environmental outcomes using GMP/Audited self management by sector or group.

Option 2. One rule approach for all (e.g. Tukituki Plan Change model requiring farm plans by set date).

Option 3. A range of activity specific rules setting minimum performance standards.

Managing Sediment Loss to Meet Water Quality Objectives



Proposal;

Option 1 based on an audited self management approach linked to specific water quality outcomes (tbc) is proposed by the Farmer Reference Group.

- Includes some performance standards for specified activities

Further development as;

- TANK makes decisions about water quality objectives,
- outputs from economic modelling
- decisions about timeframes

Revised options

Preferred approach. Management through industry or collectives (farm, orchard...)

- HBRC receive performance results (non-compliance) from collective/GAP auditor ~~audit collective~~ with sanctions
- Collective audit members at least every 3 years (or by risk assessment)
- Bespoke plan ~~FMEPs~~ relative to collective
- Preferential access to HBRC incentives based on priority catchments

Default approach. Do it all yourself

Follow the rules and regulations into a FMEP ~~to gain consent~~

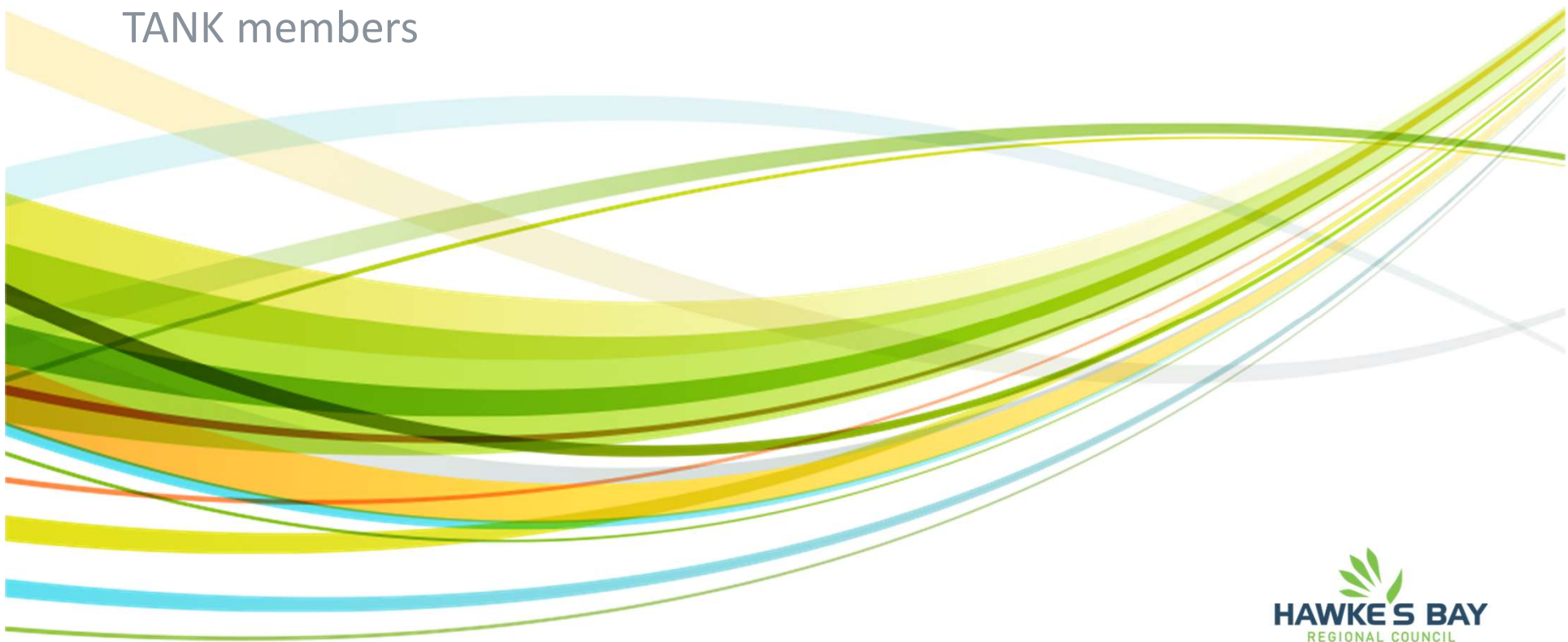
- HBRC to audit
- FMEP per farm to meet HBRC std
- ~~Not eligible for HBRC incentives~~

TANK Group Discussion and Questions



Open plenary discussion

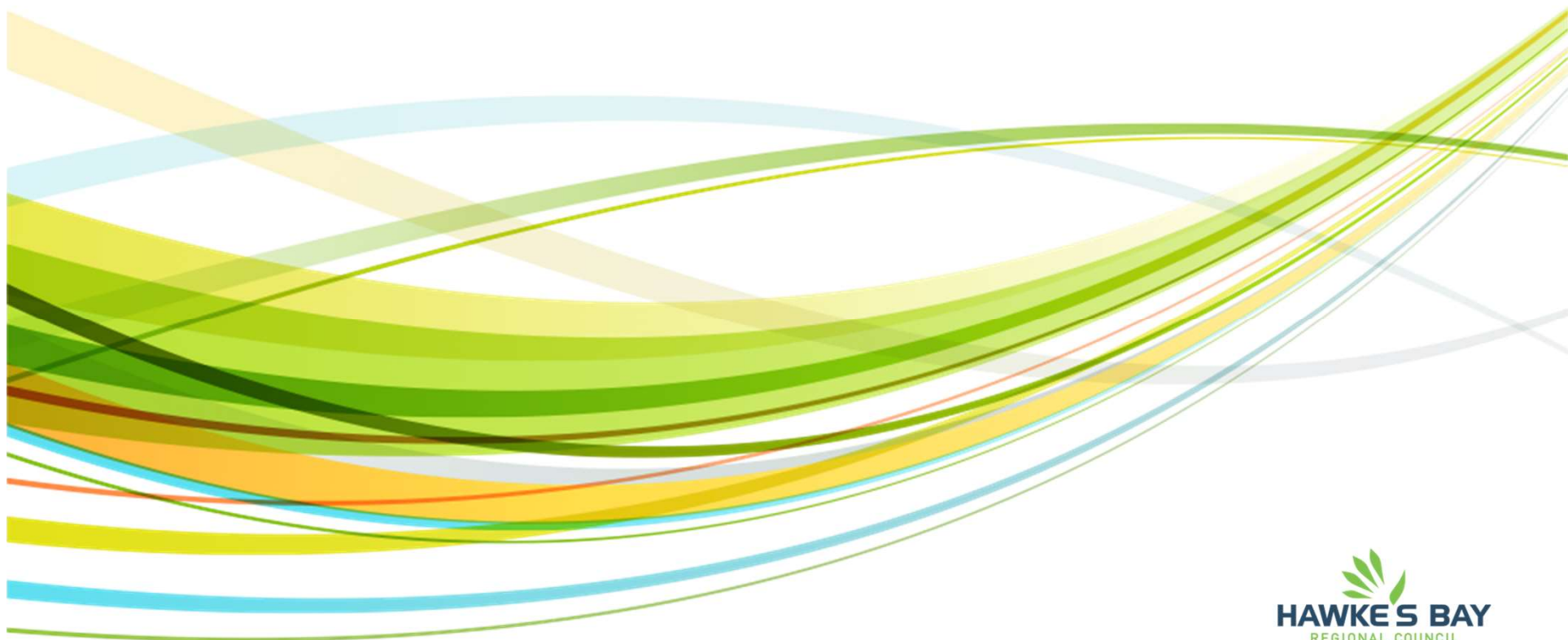
TANK members



Topics for discussion

- WCO
- Wider context for the TANK plan change
 - Strategic Plan
 - Long Term Plan
 - Integrated catchment management to achieve outcomes
 - Scope of the TANK process
- Communication with wider community

Engagement with TANK Plan



VIDEO – telling our stories

WHAT

- TANK Plan – overview: what, who, when
- Allocation – groundwater
- What’s happening on the farm
- Clive and Karamū Rivers
- Ahuriri estuary
- Stormwater
- Muddy waters and weeds
– riparian, sediment, shading

WHEN

Sept
Oct
Nov
Dec
Jan
Feb
Mar

EMAIL and PRINT

WHAT

- Think TANK
- TANK PLAN booklet (refresh)

WHEN

October

What do you need to talk about the TANK Plan with your groups/ communities/ members?

Next Meeting – 10 October (proposed)

Nutrient management

- State and trends recap
- Where are the sensitive soil type hotspots?
 - Land use maps, SedNet, SPASMO for N and P, tile drains
- SOURCE modelled loads to the Estuary
- Management approach
 - Uncertainty and learnings from Tukituki
 - Industry solutions and management framework

Water Quality Attribute states

- Revisit priorities from Meeting 22 and confirm desired attribute states

Next meeting – 18 October 2017

- Flow management options – Ngaruroro and Tutaekuri Rivers
 - Surface and Groundwater allocation
 - Minimum flow management regimes
 - Level of habitat protection options
 - Security of supply outcomes

- Water allocation regime - re-allocation of water

Closing Karakia

Nau mai rā

Te mutu ngā o tatou hui

Kei te tumanako

I runga te rangimarie

I a tatou katoa

Kia pai to koutou haere

Mauriora kia tatou katoa

Āmine