

# Pongakawa and Waitahanui Freshwater Futures Community Group Workshop 6 Notes: Catchment modelling scenarios and use values

Pongakawa Hall, Old Coach Road, Pongakawa

Thursday, 28 September 2017 commencing at 9.00am

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**Members present:** Wilma Foster (Chair) Bernie Hermann, Bev Nairn, Darryl Jensen, Geoff Rice, Grant Rowe, John Garwood, John Meikle, Mike Maassen, Te Awhi Anderson Manahi (until 12.30pm), Dennis Walker, WBOP Councillor Kevin Marsh and Colin McCarthy

**Apologies:** BOPRC Councillor Jane Nees, Julian Fitter, Paul Van der Berg, Marc Fauvel, Melv Anderson, Roku Mihinui, Andre Hickson, and John Cameron

**BOPRC Staff present:** Pim de Monchy (Relationship Manager), Stephanie Macdonald (Facilitator), Kerry Gosling (Facilitator), Nicola Green (Senior Planner – Water Policy), Andrew Millar (Senior Planner – Water Policy), and Santiago Bermeo (Senior Planner – Water Policy)

**Observer:** Rani Dhaliwal (University of Waikato PhD student)

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## Related documents previously circulated:

1. Workshop Agenda
2. [Briefing Note – Catchment modelling scenarios and use values](#)
3. [Workshop presentation](#)

These documents are online through the Council website. <https://www.boprc.govt.nz/our-region-and-environment/water/freshwater-futures/freshwater-community-co-governance-and-technical-advisory-groups/community-groups-and-iwi-engagement/community-group-workshop-records-reports-and-presentations-iwi-engagement/>

## 1 Welcome / Focus of the Day

Geoff opened with a karakia.

### 1.1 Agenda, Purpose and Updates

Agenda purpose and updates discussed. Refer to the presentation slides on:

- Work programme
- National updates
- Use values
- Catchment scenarios and modelling
- Management options

Also refer the [Ministry for the Environment Fact sheets: Changes to the Freshwater NPS – 2017](http://www.mfe.govt.nz/publications/fresh-water/fact-sheets-changes-freshwater-nps-2017). <http://www.mfe.govt.nz/publications/fresh-water/fact-sheets-changes-freshwater-nps-2017>

### 1.2 Questions / Comments

#### Question and Comments on Wider Community Communication:

- **Q:** Are development scenarios the same as management options? **A:** No. Clarification will be provided about development scenarios and management options during the day.
- **Q:** How do other community group members communicate with the wider community? Do people have ideas? **Discussion / Comment:**
  - Some use their organisation's email or other means to communicate with their organisations.

- We have yet to go through the process and reach a conclusion so it is difficult to communicate any potential change.
- Model results and testing management options are expected in March / April 2018. Wider communications are expected then but have yet to be planned.
- General agreement that it would be useful for Council to provide the group with a summary of progress to date and next steps.
- The draft summary is to be circulated to the group for comment to get a consistent agreed message.
- Generally agreed a mail drop / information published in the local paper was the preferred form of communication.

**Action:** Council staff to prepare a draft short summary of progress and next steps for comment by group members.

#### **Questions and Comments on National Updates:**

- **Discussion / Comment:** Changes to the National Policy Statement for Freshwater Management 2014 (NPSFM) that came into effect on 6<sup>th</sup> September 2107 were summarised. Key NPSFM changes include: strengthened policy for Te Mana o te Wai, suitability for swimming targets, Councils to consider how to enable communities to provide for their economic well-being within limits, and monitoring plans to include microbial health, macro-invertebrates and Matauranga Maori.

#### **Questions and Comments Use Values:**

- **Comment:** There is forestry in the catchment; therefore the National Environmental Standard for Plantation Forestry is also relevant. Agreed.
- **Q:** Will effects of urban development and water quality be considered? **A:** Yes, although not a substantial matter for this catchment. MfE is progressing consideration of urban water quality management. Comprehensive stormwater consents for Tauranga and Pāpāmoa consider stormwater quality; and work on the Te Puke resource consent application is currently being undertaken. If there are localised issues of concern advise Pim.
- **Q:** Regarding the use value of flood water conveyance and drainage, is water quality tested up and down-stream? Farm drain discharges affect water quality. **A:** There are regular stream monitoring sites in the catchment. It can be difficult to monitor at high flows (flood water monitoring). Additional monitoring has been done on small streams and some drains and canals, and data is yet to be reported. There has been some sampling of farm drains for water quality. When published it can be made available.

#### **Questions and Comments Catchment Modelling:**

- **Q:** Is water within several metres of the ground surface considered groundwater or surface water? **A:** Water in rivers and lakes that you can see would be considered surface water in water bodies. (Water bodies can be connected. Taking water from the ground can affect surface water bodies).
- **Q:** Is there one catchment model for the two catchments? **A:** There is one model that covers the Kaituna-Pongakawa-Waitahanui water management area. The model is divided into sub-catchments. Model output results will be able to be reported for separate catchment areas.
- **Q:** Will you get more information on groundwater quality, nitrate levels? **A:** We have some groundwater quality data and are expecting to collect more in the future. However, the catchment model does not model groundwater quality beyond the near surface.

## 2 Catchment Modelling – Reference State; and Scenario: Current Land/Water Use

Refer to the presentation slides on reference state.

### Questions and Comments on Reference State

- **Q:** What is the time horizon for scenarios? **A:** Approximately 2050 (30 years).
- **Comment:** There is a risk that the 'reference state' will be considered a scenario / potential future outcome that is sought. There would be contaminant contributions from birds in a reference state. **A:** Agree that there is a risk of confusion between the 'reference state' and future scenarios, which are different. That has to be managed. The reference state is required to estimate what background levels of contaminant discharges there would be in the catchment without land development. It is required to assess how realistic it would be to achieve any objectives and limits being considered. The 'reference state' is not a realistic future scenario.

Refer to the presentation slides on Scenario: Current Land/Water Use.

### Questions and Comments on Scenario: Current Land/Water Use

- **Comment:** Information on nitrogen discharge could be obtained from other catchments if it is not available within the catchment. The fertiliser companies may be able to provide information. **A:** Agree, but would have to look for similar soil types, rainfall etc.
- **Q:** Are stocking rates defined within a farm system/property boundary; or on a land use type in general like dairying? **A:** It is the area used for that land use type/area stocked.
- **Comment:** Overseer is based on a farm unit therefore it is different.
- **Q:** Does the model look at the effect on water quality? **A:** Yes. The stock rate and other factors like soil type influence the discharge of contaminants. Assumptions are made about the inputs to the model. We need to check with you how realistic you think the land use practice assumptions are based on your expertise and knowledge. We also want you to consider if practices for the same land use vary in different parts of the catchment.
- **Q:** Are required water use records actually received? **Action:** Yes. Information on water use metering and reporting records to be provided.
- **Comment:** Stock water requirements differ depending on whether it is maximum daily or average daily.
- **Q:** Why are water requirements for stock drinking and dairy shed wash down treated separately? How does Council deal with metered data? **Member Comment:** Some farmers want them metered separately. However, doing so can cause some logistical problems depending on the source / reticulation design. Use in dairy shed varies from 55-70 litres/head/day
- **Q:** Te Puke municipal water use is taken from a different location. Is that taken into account? **A:** Yes.

### 2.1 Activity: Current Land Use Practice

Community Group feedback on Current land use practice

#### Dairy

- Two areas with different practices - stocking rates vary.

#### Lowland/flats

- Lowlands/flats 2.8 – 4 cows/ha.
- Wintering off one third to one half of the stock from June/July for 6-8 weeks. A high proportion go to sheep & beef and maize growing areas within the catchment.
- 13-16 tonne/ha. June-July 20, August 35.
- Most have stand-off pads – most without a roof. Cows may only be on paddock 3-6

hours a day in June/July.

- Irrigation in the height of summer – approx. 6 day cycle.
- Effluent solid separators – check consent records – we think they are starting to be used more. Weeping walls? Majority of effluent is still to ponds.

#### Hill country

- 2.5 cows /ha. Same grass growth rates, but different timing. 9-13 tonne/ha dry matter eaten.
- There is a difference in dry matter between the flats and the hills.
- No winter fodder crops because we have high winter growth.
  
- Most are dairy system 2-3.
- Phosphate 2x/yr – 200-300 kg Superphosphate (check Farm Facts and Figures doc).
- N use 100-120/year on average. 20-30 six times per yr. Not applied in July, but probably applied in December.
- Maize, palm kernel (all year) and grass silage brought on.
- Average kiwicross is 450-480kg (Friesian-Jersey).
- Growth rates are a bit lower over the winter.
- Generic N and P inputs.
- Top of Waitahanui catchment farming is different again – look at farming assumptions for Lake Rotorua catchment.

How do urine patch assumptions change with stocking rate?

#### **Sheep and Beef**

- Dairy support is part of sheep and beef – most sheep and beef farms graze heifers.
- Mostly on the upper steeper parts of the catchment.
- Some do a winter crop for dairy support (up to 10% of the farm).
- Some do set stocking.
- One application per year; top-dressing.
- Winter grazing: 300 cows/farm for six weeks; the assumption that cattle are removed in the winter so no urine patch return modelled is incorrect.
- Winter urine modelling is really important.
- Does model assume different N urine concentration for dairy vs. sheep and beef? How does it account for feed type? What about time of year? Drink 45 litres/day in winter and 105 litres in height of summer.
- Te Puke municipal supply assumes average person uses 220 litres/day.
- 8 -10 stock units/ha. Approximately 50% dairy cattle.

#### **Kiwifruit**

- Key difference is production levels; in the 1990 green 5,000 trays/ha but now 11-12,000 trays/ha, current gold variety 12-16,000 trays/ha.
- Growth period much longer - in some areas can be September – May in favourable locations.
- Only 60% of pruning is in winter; 40% is in the summer.
- Fertiliser 110-120 kg/N/ha applied three to four times rather than two times/yr pre-Christmas.
- Foliar application of N is smaller. How is that accommodated in the model?
- ET estimates are wrong – overestimating irrigation.
- How do SPASMO and APSIM compare?

## Maize

- Agree with the following assumptions in the briefing note (subject to comment):
  - One crop per year – harvest window is approx. 135-140 days.
  - Planted from 25 September when soil temps >14 degrees.
  - Maize yield: 18 – 23 T dry matter/ha/yr in lowlands, and around 14 – 16 T up around Rotorua **Comment:** 18 – 23 T dry matter/ha/yr in lowlands is reasonable but depending on management could be up to 30 T dry matter/ha/yr.
  - After harvest: fields sown with rye grass which is grazed once over winter, and then harvested for grass silage in spring.
- Yield from the rye grass 2.5 – 3.0 T DM/ha for the grazing and another 2.5 – 3.0 T DM/ha for the grass silage **Comment:** Don't know
- The fertiliser regime. **Comment:** Varies a lot. The application rates suggested are high. At the rate and yield suggested it would be hard to make a profit. Suggested that information should be obtained from the fertiliser company (validate with Pioneer).
- Other comments: If the growing paddocks are rotated then the fertiliser application rate is decreased e.g., rotating on dairy land for green feed. If commercially grown the same paddock is used every year – need to know proportion of each. Validate assumptions for commercially grown maize with Pioneer.

## Vegetable

- No feedback as not considered by the group.

## Forestry

- Suggested that information should be obtained from Pukepine.

### 3 Catchment Modelling – Future Development

Refer to the presentation slides on Future Development.

#### Questions and Comments on Scenario: Future Development

**Q:** What is land use class “other” on the land use map in Pongakawa/Waitahanui? **A:** The quarry in the Waitahanui, wetland and a mixture of other uses.

**Comments:** While sea level increase could be managed through engineered structures and additional pumping, there will be farms below sea level. Existing stop-banks are not designed for protection from sea level. Engineering solutions may be too expensive to manage the sea level increase and the salt water/ freshwater interface will move upstream. The return on the land subject to being lost due to sea rise maybe may not be worth the cost of engineering work to protect it from inundation. It also depends on other values in addition to economics. **A:** Agree there is considerable uncertainty.

**Q:** Would the salinity of groundwater increase with seal level rise / are there saline effects behind dykes? **A:** Possibly. In Holland they dredge sand and deposit it to create an artificial shoreline to mitigate the potential for saline intrusion. Estimates in the Bay of Plenty indicate the 2M m<sup>3</sup> would be required for such a proposal and the cost would be \$2 m<sup>3</sup> (\$4 million).

**Q:** Does the model estimate sediment deposition in the estuary? **A:** Yes. Rates of sedimentation vary. The density of farm drains has an impact.

**Q:** When forests are harvested are rivers monitored for sediment deposition? **A:** Yes there is monthly monitoring for sediment. Also consent conditions require monitoring when forests are harvested. Monitoring results show there is a high initial sediment discharge, then it is low after a couple of years.

**Q:** What effect does re-contouring land for horticulture have on sediment deposition downstream? **A:** Expect that the potential effects of such re-contouring is beyond what this model is capable of estimating.

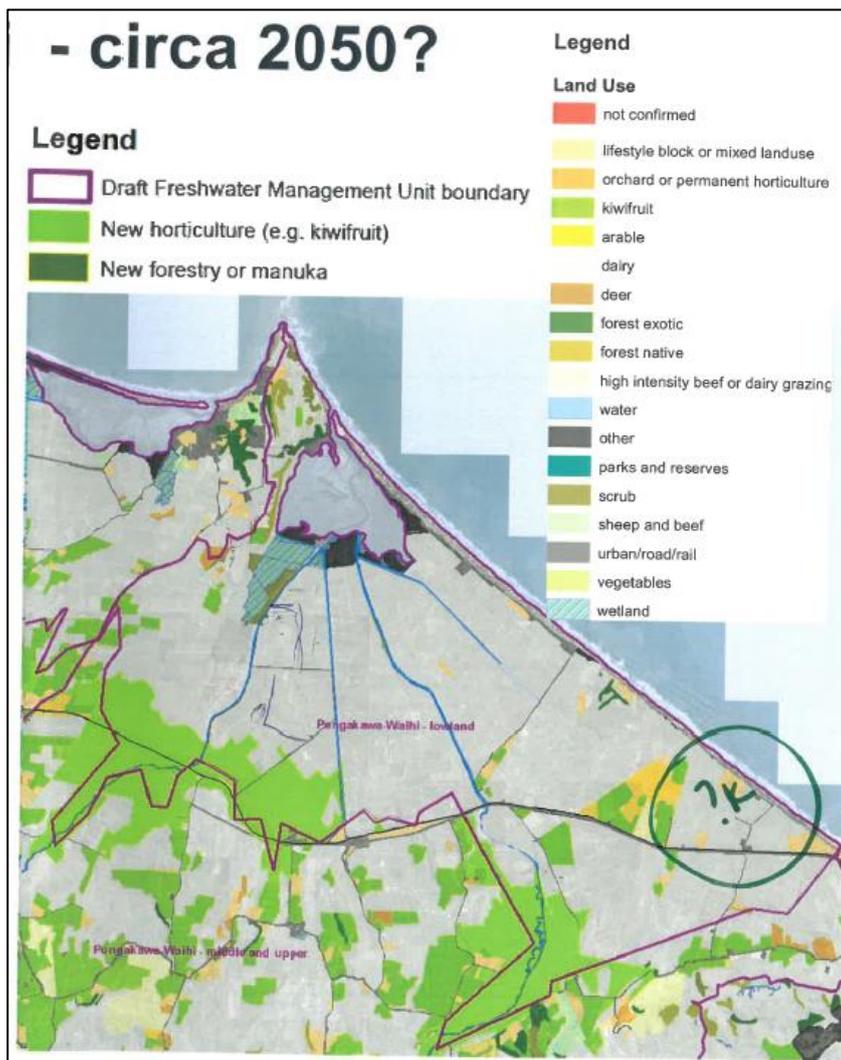
### 3.1 Activity: Future Development Scenario

Community Group feedback on Future Development Scenario 2050. Discussed the maps showing future land use expected in 2050. The maps were based on feedback from previous workshops and discussions with the dairy and kiwifruit industry on general land use change patterns.

#### Lower Pongakawa-Waihi

Which future land uses should be changed and why?

- Pumping needs to continue because of investment.
- No kiwifruit below SH2. It has never been grown there before; the soil is too wet. The possible exception is the area below SH2 in the eastern end of the FMU, where there is existing kiwifruit today (see below).



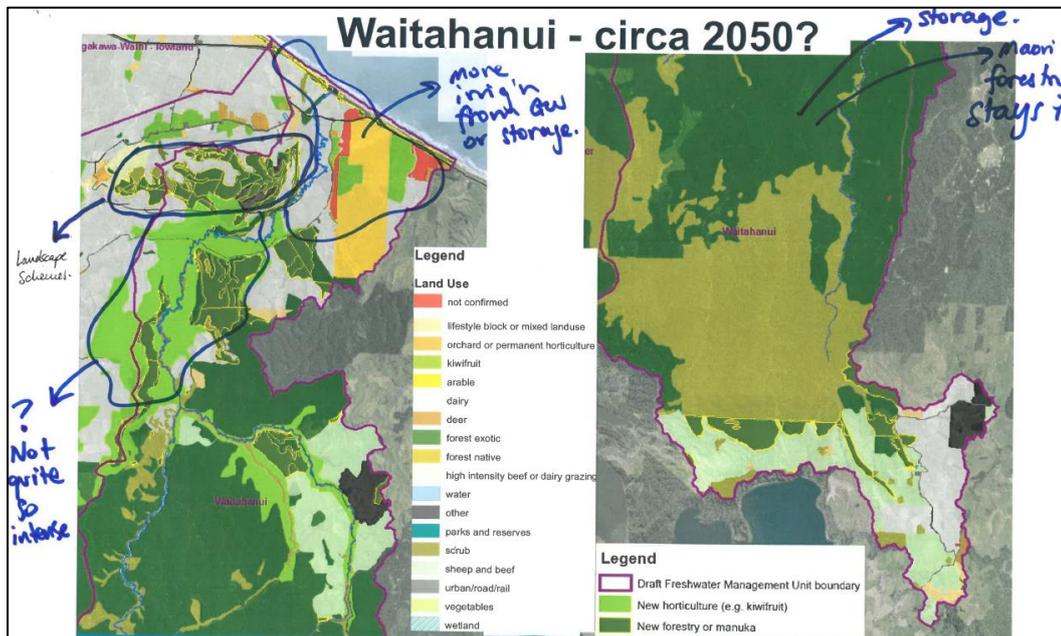
Comments:

- If there is further wetland what would Waihi Estuary become?
- Potential for tourism.
- Rising water levels could affect the stability of trees (avocado).

## Waitahanui

Which future land uses should be changed and why?

- Expect kiwifruit on current dairy land with suitable contour and dairy to be displaced further up the catchment.
- Expect greater irrigation of the lowland areas.
- Pukehina population growth.



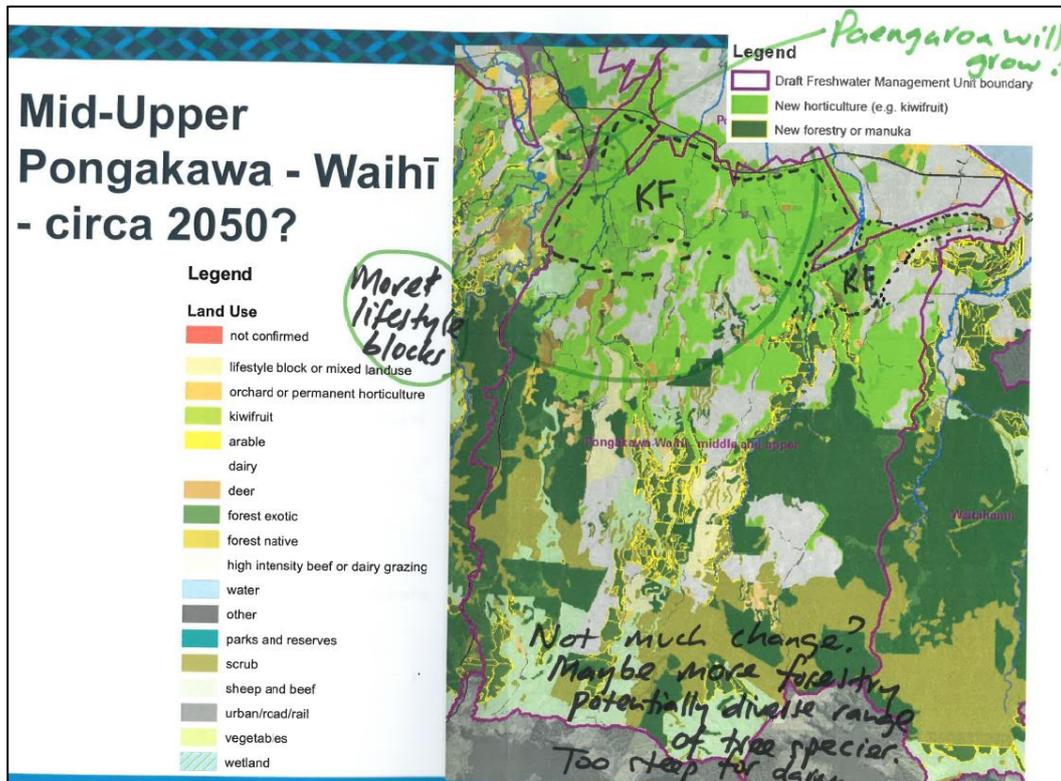
Comments:

- Check the District/Regional Plans; there are outstanding natural landscape provisions on the hill tops behind Old Coach Road. This may prevent the suggested future potential for forestry development on this low land use class.
- Don't think kiwifruit is viable at higher altitude / colder areas as suggested.
- There are current limitations on water supply for irrigation. There may be a need for dam in the upper catchment to augment water supply.
- There is not expected to be a change from forestry on the upper catchment; unless it is for housing or changed for Mānuka.
- The kiwifruit industry nationally is expecting to increase; it is not known what proportion could be in this area.

## Mid-upper Pongakawa-Waihi

Which future land uses should be changed and why?

- Land values rising; more lifestyle blocks.
- Very little kiwifruit below SH2.
- G3 kiwifruit from SH2 to 2-3 km above Old Coach Road.
- Forestry on lower class land.
- Upper catchment not much change; perhaps forestry (diversity of trees species), Mānuka.
- Paengaroa growing also the industrial park.



Comments:

- Re-contouring of land for kiwifruit expansion.

## 4 Catchment modelling – Management Options and Criteria

Refer to the presentation slides on Management Options and Criteria.

### 4.1 Activity: Management Options and Criteria

Score for 'Be Considered' column:

1=Low priority

2-Medium priority

3=High priority

Management Options - Sediment		✓one per row		✓one per row	
		BE considered	NOT BE considered	GMP	GMP +
S1	<b>Land use change</b> - appropriate land use for soil/slope/LUC. e.g. change to forestry, native or wetland	3		✓	
S2	<b>Land management practices</b> <sup>1</sup>	2		✓	
	○ Swales, soak holes and sediment traps <sup>2</sup>	3		✓	
	○ Sediment ponds/detention bunds/dams/storage <sup>3</sup>	3		✓	
	○ Pole/bush/riparian planting and buffers <sup>4</sup>	3		✓	
	○ Restrict cultivation cropping and grazing practices around sensitive areas	3		✓	
S3	<b>Mechanical</b> - remove sediment before reaching estuary <sup>5</sup>	3			✓
S4	<b>Land management practices</b>	3		✓	
	○ Stock rotation and grazing management	3		✓	
	○ Stock access crossings, bridges, culverts <sup>6</sup>	3		✓	
	○ Seal roads, track and road maintenance, races <sup>7</sup>	3		✓	
S5	<b>Urban storm water management</b> (overlap with district council functions)	2		✓	
	○ Impervious site coverage <sup>8</sup>				
	○ Subdivision earthworks management (including permitted activity rules) <sup>9</sup> . Swales, wetlands, rain gardens				
S6	<b>River engineering:</b>	N/A			
	○ [Review] HEP peak flows, ramping rate frequency <sup>10</sup>				
	○ Manage morphology: Stabilise susceptible stream banks				
	○ Extraction of sediment, sand, gravel in navigation channel and on pipi beds in Maketū Estuary	3		✓	
S7	<b>Forestry practices</b> [most, if not all, will be covered by the National Environmental Standard for Plantation Forestry]	3		✓	
	○ No desiccation <sup>11</sup>				
	○ Harvest planning				
	○ Agree rotational harvesting				
	○ Forestry further planting setbacks from waterways				
	○ Keep off steeper more erodible areas (certain soil types)				
	○ Constrain timing of forest felling?				
	○ Slash control for waterways				
	○ <u>Skid pads, hauler road/track location.</u>				

1 Manage at source first

2 Education, maintenance, marae buildings. Sediment traps especially needed where drains are sprayed. Soak holes for buildings perhaps.

3 Slow release/peak

4 Don't spray edge of drains. Need a grass buffer for sediment

5 High habitat loss if not removed. High habitat loss in cleared area (e.g., Kaikokopu canal – short term necessity to avoid flooding)

6 Must be big enough. Size and install properly or can cause more problems.

7 Road location important

8 Note a big issue in catchment but new growth should be subject to good management - Paengaroa

9 Require earthworks consent for re-contouring

10 Probably not apply to sediment

11 Over sew instead. Location and management of skidways, haulers, roads and tracks also important.

S8	Transferable land development rights	3		✓	
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### Additional suggestions

S9	<b>Regional Council acquisition of erodible land</b>				
	Location of fence-lines – not on ridges				

Management Options - Nutrients		✓one per row		✓one per row	
		BE considered	NOT BE considered	GMP	GMP +
N1	<b>Land use change</b> (appropriate for natural soil moisture/rainfall/climate, avoid consenting activities in areas where the land is incapable of carrying the land use without significant volumes of water being available (assumes adding water will release nutrients?), coordinated catchment approach <sup>12</sup>	1		✓	
N2	<b>Land management practices</b>	2		✓	
	o Land use/cropping restrictions (e.g. buffers around sensitive environments, restrict high leaching crops like maize)				
	o Remove large/old gorse (nitrogen) [Is there a lot of gorse in the catchment?] <sup>13</sup>	3		✓	
	o Riparian management: fencing and planting buffers	2		✓	
	o Stocking rate restrictions/reduction	1		✓	
	o Manage/monitor fertiliser loading rates – application of irrigation/fertiliser- and cultivation <sup>14</sup>	1		✓	
	o Pasture/fodder crop management, including new low N pasture/fodder crop varieties <sup>9</sup>	1		✓	
	o Use low N breeds of cow	2			✓
	o Feed pads or cow housing, particularly during high rainfall and winter	2			✓
N3	Create/manage wetlands	3			✓
N4	<b>Urban</b> - Waste Water Treatment Plant (WWTP) standards and load controls; Storm water best practice, LIDs (low impact design)	3		✓	
N5	<b>Sub-catchment level (or other grouping) nitrogen discharge allowances</b> and limits e.g. Catchment or sub-catchment user groups - can manage a common attribute e.g. Lake Rerewhakaaitu		✓ <sup>15</sup>		
N6	Better effluent treatment, disposal or reuse	2		✓	

12 Insure cost of change is shared

13 Replant in what?

14 Industry and users

15 Leads to blame game within community

N7	Property-level nitrogen discharge allowances/farm nutrient budgeting	2		✓	
N8	Remedial work in lakes (only addressing symptom): Alum dosing, weed harvesting, aeration	1		✓	
N10	Farm discharge quality requirements	2		✓	
N11	Improve basic soil health/biology	1			✓
N12	Calve later in Spring		✓		

<b>Management Options – Water Quantity</b>		<i>√ one per row</i>		<i>√ one per row</i>	
		<b>BE</b> considered	<b>NOT BE</b> considered	<b>GMP</b>	<b>GMP +</b>
Q1	In-stream minimum flows - change allocation limits.	3		√	
Q2	Secondary allocation – high flow allocation for storage.	√			√
Q3	Variable flow restrictions: Less than 100% reliability	√			
Q4	Seasonal limits				
Q5	Storage systems, capture rainwater, recycle water	1-2			
Q6	<del>Claw-back</del> <u>Review</u> on existing consented use - amend consent conditions to align with limits/clawbacks	?			
Q7	<u>Review</u> Base on usage [or estimated reasonable use] not allocations	3			
Q8	Prohibit new water takes – no consents in over allocated systems	√			
Q9	Municipal water supply demand management (water meters) [and cost-recovery]	√			
Q10	Off-stream dams – store winter/peak flow; Storage in upper catchment	√			
Q11	Bring water from other catchments		√		
Q12	Damming small rivers vs. no more on-line dams	√			
Q13	Managed (artificial) aquifer recharge	1			
Q14	Scheduled use within catchment - rostered consents [happening now] OR water user groups	3			
Q15	Transfer/sharing/trading takes [proposed to be provided under PC9]		√		
Q16	Water user groups (e.g., Twyford) [already provided for under PC9]	1			
Q17	Reduction in water use: demand management, conservation strategies, promote efficiency and innovation e.g. soil moisture monitoring	√			
Q18	Preferential allocation policies/plans	3			
Q19	Increase cost-recovery charges make it volume-based (note this is different to water pricing)	?			
Q20	Real-time monitoring by telemetry				

Management Options - Bacteria / Pathogens		√ one per row		√ one per row	
		BE considered	NOT BE considered	GMP	GMP +
B1	<b>Land use change</b>	3			√
B2	<b>Waterfowl</b> and pest control for bacterial reduction only	1		√	
B3	<b>Manage hydrology</b> - pumped drains, water quantity (dilution), changing drainage network.	2		√	
B4	<b>Land management practices</b> <ul style="list-style-type: none"> <li>○ Riparian fencing and planting buffers: drains - Fence with 2-wire fences. Plant verges. Grass, fencing, stock exclusion, increase in winter/spring.</li> <li>○ Stocking numbers/rates – herd/paddock management (especially on peaty soils)</li> </ul>	3			√
B5	Wetlands	3			√
B6	Buffer zones Non-high (or low) intensity pasture around sensitive environments (relates to LUC/natural capital) <sup>16</sup>	2-3		√	
B7	Upgrade point source discharges (e.g. wastewater, on-site effluent, etc	2		√	
B8	WWTPs lined effluent ponds for dairy. Wastewater management at point of discharge. On-site treatment capability.	2		√	
B9	More holding capacity of effluent, more precise application based on soil moisture, and better timing of effluent irrigation (e.g. not during or immediately after rainfall) <sup>17</sup>	3			√
B10	Gate and trough location and feeding	1		√	
B11	Managed stock crossings, bridges – put mats out for stock to cross over on, low walls on drain bridges	2		√	
B12	Dung beetles <sup>18</sup>	1		√	
B14	Slope access tracks inwards from drains	3		√	
B15	Break fed from inside out	3		√	

16 Depends on sector

17 Depends on location; lowland especially

18 Requires information on viability

## 4.2 Summary: Management Options and Criteria

<b>Sediment</b>
<p>Highest priority</p> <ul style="list-style-type: none"> <li>• S2b Sediment ponds/detention bunds/dams/storage</li> <li>• S5b Subdivision earthworks management (including permitted activity rules). Swales, wetlands, rain gardens.</li> <li>• S7 Forestry practices</li> <li>• S9 Regional Council acquisition of erodible land</li> </ul>
<p>Lowest priority</p> <ul style="list-style-type: none"> <li>• S6a River engineering</li> <li>• S5 No urban stormwater</li> </ul>

<b>Nutrients</b>
<p>Highest priority</p> <ul style="list-style-type: none"> <li>• N2b Remove large/old gorse (nitrogen)</li> <li>• N2c Riparian management; fencing and planting buffers</li> <li>• N3 Create/manage wetlands</li> </ul>
<p>Lowest priority</p> <ul style="list-style-type: none"> <li>• N5 Sub-catchment level (or other grouping) nitrogen discharge allowances and limits e.g. Catchment or sub-catchment user groups - can manage a common attribute e.g. Lake Rerewhakaaitu</li> <li>• N12 Calve later in spring (should be up to the farmer to decide)</li> </ul>
<p>Comment from Pim:</p> <ul style="list-style-type: none"> <li>• On lowland peat moisture monitoring indicates it is often too wet to irrigate effluent and meet Good Management Practice (GMP). Only 90-100 days would be suitable for GMP.</li> <li>• Effluent treatment plants are now available. Effluent is treated then can then be reused for shed wash-down. The solids can be spread on land (cost \$350,000 for a 700 cow treatment plant).</li> </ul>

<b>Water Quantity</b>
<p>Highest priority</p> <ul style="list-style-type: none"> <li>• Q5 Storage systems, capture rainwater, recycle water</li> <li>• Q14 Scheduled use within catchment - rostered consents [happening now] OR water user groups</li> <li>• Q1-4 (Rely on accuracy of flow recordings) <ul style="list-style-type: none"> <li>○ In-stream minimum flows - change allocation limits</li> <li>○ Secondary allocation – high flow allocation for storage</li> <li>○ Variable flow restrictions; Less than 100% reliability</li> <li>○ Seasonal limits</li> </ul> </li> <li>• Q20 Real-time monitoring by telemetry</li> </ul>
<p>Comments:</p> <ul style="list-style-type: none"> <li>• Q6 Should be review not, claw back on existing consented use</li> <li>• Rostering is not required if everyone is not taking on the same day / at the same time</li> </ul>

<b>Bacteria / Pathogens</b>
Highest priority <ul style="list-style-type: none"> <li>• B4 Land management practices</li> <li>• B1 Land use change</li> <li>• B9 More holding capacity of effluent, more precise application based on soil moisture, and better timing of effluent irrigation (e.g. not during or immediately after rainfall)</li> </ul>
Lowest priority <ul style="list-style-type: none"> <li>• B12 Dung beetles (insufficient information on viability)</li> </ul>
Comments: <ul style="list-style-type: none"> <li>• Centralised effluent processing could be effective</li> </ul>

### Questions and Comments on Management Options and Criteria

**Comments:** The management options for each attribute should be circulated to the group for comment as members only had the opportunity to comment on one attribute (sediment, nutrients, water quantity and bacteria / pathogens). **Action:** Staff will circulate the list of management options in the form of an online survey for wider group feedback.

**Q:** Is sedimentation measured? **A:** Pim noted sediment plates in the estuaries measure rate of sedimentation. Maketū used to be 4M m<sup>3</sup> in the 1950s and now 1.5M m<sup>3</sup>.

## 5 What's Next?

Refer to the presentation slide on Next Steps.

## 6 Summary and Actions

- Discussed how community group members communicate with the wider community:
  - members responsibility to communicate with their network
  - workshop power point slides added to the internet
  - council to provide draft summary of the process to date and next steps for the group for comment to get a consistent agreed message
  - information to be published in the local paper (Barry / Wilma).
- Council will provide technical report on additional water quality monitoring completed in tributaries and some land drainage systems when it becomes available.
- [Modelling flow chart used in Workshop 5](https://www.boprc.govt.nz/media/670460/draft-1-pongakawa-waitahanui-workshop-5-powerpoint.pdf) will be provided to the group (See slides 55 to 64). <https://www.boprc.govt.nz/media/670460/draft-1-pongakawa-waitahanui-workshop-5-powerpoint.pdf>
- Ask Balance for fertiliser use for the catchment (Darryl).
- Send any information (representative of the last 12 months) you can share for the following to Pim: Overseer/nitrogen loss, kiwifruit fertiliser application (foliar verses land application) and yield, soils (all).
- Is there compliance with the requirement to provide water use returns? **Response:** Water use data management compliance is discussed on page 22 of the [BOPRC 2015/2016 Regulatory Compliance Report, February 2017](https://www.boprc.govt.nz/media/635500/2015-2016-regulatory-compliance-report-master-pdf.pdf). <https://www.boprc.govt.nz/media/635500/2015-2016-regulatory-compliance-report-master-pdf.pdf> Here it is stated: ... *collection and management of that data remains one of the most challenging aspects of compliance for water takes. ... Furthermore, a significant number of consent holders do not submit water use data within the required timeframe. Over 70 fines were issued for the late submission of data in 2015/2016<sup>4</sup>, which is up from 58 in the previous year. ... BOPRC has continued to work closely with industry groups to communicate the legal requirements for data collection. In addition to increasing engagement, BOPRC is also exploring a range of tools to facilitate the submission of data: ....*

- How does council receive water use data, what is it used for and can it be viewed?  
**Response:** The Council website discusses [Water Metering](https://www.boprc.govt.nz/our-region-and-environment/resource-consents/water-metering/).  
<https://www.boprc.govt.nz/our-region-and-environment/resource-consents/water-metering/> Consent holders are able to enter water use data and view graphs of their water use online using the [Water Use Data Management System \(WUDMS\)](http://monitoring.boprc.govt.nz/monitoredsites/cgi-bin/wudmswebserver.cgi).  
<http://monitoring.boprc.govt.nz/monitoredsites/cgi-bin/wudmswebserver.cgi> Submitting water use data is explained in [A guide to Bay of Plenty Regional Council Water Users data Management System \(WUDMS\)](https://www.boprc.govt.nz/media/305029/guide-to-wudms-and-how-to-log-on-sept-2013.pdf). <https://www.boprc.govt.nz/media/305029/guide-to-wudms-and-how-to-log-on-sept-2013.pdf> The information is used to prepare regional plans and assess water allocation including: modelling hydrology, compliance monitoring and consent processing.
- Validate maize yield / fertiliser application rates with Rob from Pioneer (Wilma has Rob's number).
- Management options exercise to be circulated to further survey the opinions of the group.
- Council to provide a [web link](#) to information on dairy shed effluent package treatment plants (wastewater reused / solids spread on land <https://www.forsi.co.nz/>). There may be potential for a field trip. Those interested should contact [pim.demonchy@boprc.govt.nz](mailto:pim.demonchy@boprc.govt.nz)
- Council to provide a [web link](#) to information on climate change in the Kaituna. <http://ccii.org.nz/research-aims/ra2/lowlands/>
- "Hands on Water Expo" occurring Thursday 9 November 11 – 2pm, Redwood Valley, Allport Road, Pongakawa. RSVP to [kerry.gosling@boprc.govt.nz](mailto:kerry.gosling@boprc.govt.nz)
- The next meeting date of 4 December 2017 to be confirmed.

Workshop ended at 2.30pm with a karakia.