

Rangitāiki Freshwater Futures Community Group

Meeting Notes: Workshop 4 - Community View of water in Rivers, Streams and Lakes

Galatea Hall, 50A Mangamate Road, Galatea

Tuesday 8 November 2016 commencing at 9.00am

Members present: Alan Law, Atamira Nuku, Bill Kerrison, Cathy Brown, Christina Bunny, Daryl Christie, George Johnston, James Doherty, John Gibson, Kerry Snowdon, Kirsty Joynt, Larry Wetting, Linda Conning, Matt Gow, Matt Osborne, Nick Doney, Steve Brightwell, Sharna Butler (standing-in for Ngapera), Tom Lynch, Councillor Norm Bruning, and Councillor Bill Clark (attending in community member role), Ngapera Rangiaho (morning).

Apologies: Alamoti Te Pou, Craig Rowe, Gareth Boyt, Mark Ross, Ngapera Rangiaho (afternoon), Robert Pouwhare, Wetini Paul

BOPRC Staff present: Simon Stokes (Relationship Manager), Kerry Gosling (Facilitator), Stephanie Macdonald (Support Facilitator), Janie Stephenson (Support Facilitator), Sandy Hohepa (Māori Policy Advisor), Michelle Lee (Water Policy Planner), Paul Scholes (Environmental Scientist), Beverley Hughes (Senior Planner), Nicola Green (Water Policy Senior Planner) and Lisa Baty (Planning Coordination Officer – Water Programme).

Related documents previously circulated:

1. Briefing note: Workshop 4 - Community View of Water in Rivers, Streams and Lakes
 2. Rangitāiki Freshwater Futures Community Group presentation 8 November 2016.
 3. Rangitāiki Community Group workshop 4 worksheets (typed up – emailed 28 Nov)
 4. Rangitāiki Community Group workshop 4: High level summary notes (as presented to Rangitāiki River Forum 22 November 2016 – emailed 28 Nov).
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1 Welcome / Updates / Focus for today

James Doherty opened with a karakia. Simon Stokes welcomed everyone to the workshop, and introduced new members:

- Kerry Snowdon, Rerewhakaaitu dairy farmer
- Sharna Butler, who is standing in for Ngapera today. Her role will be observing today for a learning purpose, as a part of the succession plan for the Ngāti Haka/Patuheuheu hapū.

Simon congratulated the two newly (re-)elected Regional Councillors here today - Cr Bruning and Cr Clark, and Whakatane District Council Cr Johnston. For the purpose of today's workshop, Cr Clark will continue to be a member of the community group as before, and Cr Bruning will continue as the representative of the Regional Council. Decisions on Councillor representation on the Group will be made by Regional Council later this month.

Kerry introduced Janie Stephenson who is returning to Council's Community Engagement team after parental leave, and noted Stephanie will be away on parental leave soon.

1.1 Agenda, purpose and updates

Kerry outlined housekeeping, the agenda and the purpose of the day.

Nicki explained:

- The purpose of the day which is to identify community group views on in-river values in each FMU. What's happening to them and how well you think they are provide for.
- A recap of what we have covered in previous workshops and the work programme. Council have confirmed the draft Freshwater Management Units (FMUs) and draft regional freshwater value set in principle.
- National updates:
 - NPSFM: Central government has stated its intention to notify changes to the NPSFM in December. We do not know what these changes look like or what we will have to change in our programme.
 - Regional Councils Chief Executives have agreed in principle to work with industry organisations, the Ministry of Primary Industries and the Ministry for the Environment towards Good Management Practice accords and consistency for things like farm environment planning across the country.
- The Resource Legislation Amendment Bill may be passed shortly by government and currently includes national requirements for stock exclusion from larger watercourses.
- The Kaituna and Pongakawa community group have shown an interest in the recently notified Healthy Rivers / Wai Ora: Proposed Waikato Regional Plan Change 1 for Waikato and Waipa river catchments. The summary documents are available. Note that the Rangitāiki situation is different and no management options have yet been considered.
- Plan Change 9 (PC9): Region-wide Water Quantity has been publicly notified for formal submissions and anybody, including group members can submit until 14 December 2016. Plan changes 9 sets region wide default allocation limits, metering requirements and data use, and policies and rules for managing water takes. Factsheets are available. Freshwater Futures (Plan Change 12, in pre-draft stage) will address water quantity and quality objectives, limits and methods for the Rangitāiki catchment and may replace / supersede some region-wide allocation limits in PC9. Group member input will help to inform key decisions for this plan change.
- Regional Policy Statement Change 3 (Rangitāiki River) was notified on 11 October 2016. It is open for submission until 23 November 2016 and provides for *Te Ara Whānui o Rangitāiki* which is the Rangitāiki River Document. Copies are available.

Key comments / questions:

- Members commented that national rules are one size fits all. Every province should have its own uniqueness rather than a blanket approach.
- One member asked if the changes to the Regional Policy Statement (RPS) will have an effect on the work of this Group. *In developing a change to the Regional Water and Land Plan we must give effect to what is in the RPS and NPSFM. We will need to get down to specific water quality and quantity objectives in the Rangitāiki catchment to implement the NPSFM in doing so we must give effect to the relevant parts of the RPS which will include Change 3 – Rangitāiki River.*
- Another member asked if Council have talked to Ngāi Tūhoe about the FMU boundaries? *Beverley explained that the Freshwater Futures team have started conversations with Ngāi Tūhoe. The settlement arrangement with Tūhoe is unique. Te Urewera Act was part of that settlement. Nicki noted that Council still has obligations under the RMA to manage freshwater and implement the NPSFM in this area.*
- Another member asked do we wait until human health is a problem before we can act to ensure rivers are swimmable? What is the criterion for this and what is happening

now? *This is part of what we want from the group today - your knowledge, observation and thoughts around the current state. We are keen on hearing about your local knowledge.*

- Objective setting: Will we be going through similar questions (how the freshwater values are provided and how they should be in the future) for other freshwater values? *We will determine current use, and credible future land and water use. Council have also been asking the same questions by the Regional Water Advisory Panel (RWAP).*
- In workshop 3 draft FMUs were drawn, but more details are included in the FMU map. For example, the draft Natural State FMU is separated in two parts. Can we revisit the FMU boundaries in detail and possibly link these two parts? *Nicki explained that the boundaries reflect the waterways current classified as natural state, which has indigenous forest cover and no modified land use upstream, hence the apparent 2 sections.*
- The FMU map does not list the rivers – in which FMU does the Okahu River sit? There are many streams that run into this river, with areas of significance including cultural features. *It is in the draft Natural State FMU. In this workshop we'd like to find out about specific important sites and their dependence on water quality and quantity. The main streams within each FMU are listed in the briefing note.*
- Regarding RPS Change 3: The water quality bands show water quality is good. Should the direction be “maintaining” the water quality rather than restoring? By saying ‘restoring’ the Rangitāiki River, does it imply that the River is not in a good position and need to go back to pre-historic condition? *The Rangitāiki River Document sets high level aspirational objectives. The Regional Policy Statement provides a broad umbrella, while we ask this group to look into specific details in order to work on specific, measureable water quality and quantity objectives. The RPS Change 3 is currently open for public submission.*

1.2 Current state science

Paul reminded the Group of key points from the current state science information discussed in workshop 2. He explained the meaning of water quality bands (A-D) from the NPSFM National Objectives Framework (NOF) and a hand-out was also provided.

Current state key comments / questions:

- Te Teko site has “B” band but down and upstream are in “A” band, why? *E.coli levels are affected by localised sources / pressures. The source of the contaminant may be near the Te Teko site but is diluted downstream. This highlights that we need to identify trends over time and sources.*
- Has the trophic state of Matahina changed over time? *Council has increased its monitoring in Lake Matahina, and latest monitoring shows it is “[supertrophic](#)”. We are doing further investigations so that we will have a better picture.*
- Are there different forms of *E.coli* in forestry and land use? *There are other bacteria. E.coli is used a key indicator. It is from warm blooded animals. Birds and other wild animals could also be sources.*

Paul responded to various questions related to *E. coli*, monitoring locations, climatic effects, nitrate and phosphorous.

2 Assess in-river values – for creating preferred objectives

Pre-workshop exercise - Kerry reminded members that in the briefing notes, members were asked to assess the “in-river” values. Kerry asked how people found the exercise. Comments and questions included:

- Does the table and today’s workshop seek ‘our thoughts and observations’? Yes.
- It could be dangerous to rely on numbers to determine river health. We need to know a lot more that might not be captured by a number. *The intent of the worksheet is to gather your observations about the river and your in-river values. The team will also check with science on how this translates.*

3 Group discussion - assessing in-river Values by FMU

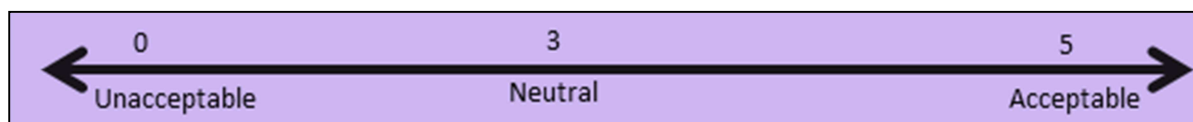
Kerry noted that member have identified which in-river values exist in the last workshop and invited group members to check whether this is correct.

Kerry explained the focus of the day: in-river values.

- Swimming and other recreation involving immersion;
- Mahinga kai (kai is safe to harvest and eat) and (the mauri of the place is intact);
- Ecosystem Health;
- Significant / threatened / rare indigenous species;
- Fishing;
- Natural form and character;
- Wai tapu and / or site of cultural significance;
- Transport and Tauranga waka

Freshwater use values including those relating to taking, using and discharging to freshwater were not covered in this workshop. Workshop 5 will have a focus on use values.

Context: Sub-groups of 3 – 5 members discussed whether each value is present and provided for within each FMU and responded to questions:



1. Is the value at an acceptable level?
2. Do current conditions of water quality/quantity allow/support for the value to be present - (why / why not)?
3. Was the value previously here but has since been lost or nearly lost (when / why)?
4. Has the value recently improved (why, how, where)?
5. How would you expect it to be (when / where / why / by when)?
6. What further information would give you greater confidence in making this recommendation? (or are you comfortable with BOPRC setting this)

Where a group couldn't reach consensus about the scoring, different viewpoints could be expressed as multiple X's on the scale, with a small number beside to show how many people gave each score. Notes about all viewpoints were recorded by participants, also noting when participants felt there was insufficient information to comment.

Groups worked on one value at a time and not all values were discussed by all groups.

Summary:

In the workshop, Steph summarised the group's feedback on swimming values in FMUs. Most members indicated the water quality in the draft Natural State FMU was generally acceptable for swimming, the response for the draft Middle-Upper Rangitāiki FMU and the draft Lower Rangitāiki FMU was more diverse.

Analysis and worksheets are included in **Attachment One**. A high level summary and the typed-up small group assessments were sent to the group by email on 28 November 2016.

Key comments:

Comments raised by one or several members about the group exercise included:

- Identification of cultural sites may need cultural expert / tangata whenua input. *Beverley commented that some iwi and hapū management plans lodged with Council identify sites of significance to tangata whenua, and they often contribute that advice to Councils in a consenting and planning process.*
- Should riparian margins be included for defining the boundary of the river - such as 5m to 20m buffer? It is hard to stick to the brief of water quality and quantity and a more holistic approach is needed. *Kerry explained that the causal loop workshop which Nicki mentioned earlier will be an opportunity to do some of this thinking.*
- A focus on major modification of the Rangitāiki River is needed, such as Kaingaroa Plains, hydro dams and the increase in dairy farming in the area that has occurred over the years.
- Some members of the group felt they had been rushed through this exercise suggesting that extra time per topic and / or more workshops are needed for better depth or completeness, such as discussing on trade off, and clearer preference for setting freshwater objectives. Members reflected that consensus was relatively easy to reach.
- This exercise led to a focus on the negative / loss over time. It is important to talk about resource use gains.

A member noted that there are quite different FMUs in Rangitāiki: original state in one FMU; modified in another two FMUs. Dams also created a lot of gains such as recreation opportunities. It's a snapshot of where we are at 2016. The observation was made that we can't go back but some areas can improve. Another member noted there were mistakes made in the past and plan for how we will addresses those for the river.

4 Credible future - scenarios - think 2030

Context:

In workshop 1, the group considered significant current and future trends affecting land and water use in the Rangitaiki catchment. The group then focused on:

- what big changes you anticipate in land use;
- land use practices;
- and industries that use water;
- where in catchment will these occur;

e.g. based on trends in your industry / sector or changes already occurring. The exercise is not looking for global changes or environmental effects, or accounting for any change in water policy / rules. BOPRC will also talk to industry / sector organisations.

This activity will contribute to building future scenarios for Rangitāiki. Based on future trends indicated during workshop 1, this activity aimed to build 'credible futures' that staff can use to build scenarios. Please show the changes on land-use and industry-use and provide as the reason behind your comments.

Comments made on the map are typed and included in **Attachment Two**.

Key comments

Feedback from individual members is summarised as follows:

- More knowledge, science, best practices (incl. farming) is improving daily.
- Change in land use is most likely to be required, but don't know what it will be or what rules and resource consents will require. Stewardship is part of the future no matter what the land use is. The focus should be on good stewardship.
- Regulation is forcing changes towards better practice.
- Smaller agricultural enterprises today are likely to increase in size as expertise is needed to meet environmental compliance.
- One member noted that New Zealand is a food production nation.

5 Summary and next steps

Workshop 4 has provided valuable local knowledge and views about freshwater in the Rangitaiki catchment, and an idea of likely future land use change out to 2030.

Nicki confirmed we are currently tendering for an e-water-source-model, which includes surface and ground water modelling. Modelling will estimate current and future effects on water quality and water quantity (hydrology) for the Rangitāiki and Kaituna catchments. Building and calibrating the model with data will take some time and may mean there is a longer break until the next workshop.

Key comments and questions:

- What percentage of accuracy is expected of the model? *We don't know right now, but will be recording assumptions and uncertainties as we go. The model will be improved over time as we get more data.*
- Why are you assuming that land use change will occur? Why not use best practice? *Nicki explained that we need to predict likely future land use change without any change to policies. When it comes to considering management options, controlling land use change and / or requiring best practice could be options we consider and assess.*
- One member commented that Regional Council has significant future plans for the drainage schemes which have significant impact on our planning. The group needs to know about these. Another member questioned why money is spent on a river that is always going to flood. *Kerry confirmed we will put links on the portal to the Scheme Plan for the next 50 years.* A member commented that instead of having links and paperwork, can council arrange for someone to give a presentation that summarises the Flood Scheme? *Simon noted that a presentation had already presented to the Group at the second field trip.*

Cause and Loop workshop:

Nicki introduced the opportunity for a Cause and Loop workshop. An MfE funded master's student's research is focussing on mapping the relationships between freshwater and other social, cultural and economic factors / concerns. This opportunity is offered only to the Rangitaiki Community Group at this stage while we trial its usefulness. It is a tool where the interrelationship is explored and mapped by a group.

If members are interested, it could be a two half day workshop, happening in the week 12-15 December 2016. A further half day workshop would be held in January to add to what was identified in December, and would be followed up with a phone call to get your feedback on the exercise.

Members in the room showed a good interest, dependent on dates and availability. An email will be sent to members with details and require rsvp.

Simon closed the day, thanking members and reiterating that it's been a long day. Great effort and thanks again.

Workshop ended at 2.44pm with a karakia from James.

ACTIONS - Rangitāiki CG 8/11/2016

What	Who	Completed date
RRF / Fonterra presentation on the implication of dairy discharge. <i>Send to group/add to portal.</i>	Council staff	
Distribute the RWAP members list and other industry groups	Council	
Upload the Flood Scheme plan onto portal	Council staff	
Email to members with details of the Causal Loop workshop	Staff (Lisa)	

Attachment One: In-river values exercise: Analysis notes

Brief summary notes and copies of typed up worksheets were circulated to community group members by email on 28 November 2016.

In this workshop we asked the community group members to share their thoughts, experience and observations on *whether they think the identified values in rivers in each draft FMU are provided for*.

The expected outcome for this workshop is that the group identify and broadly agree on which values within each FMU:

- they are generally happy / satisfied with as they are now
- they found generally acceptable, but wish more could be done
- they found unsatisfactory and why
- they hold different views and why.

The table below summarises the range of views expressed by sub-groups of 3 - 5 members by way of a scale of acceptability from 0 - 5. Green indicates small variation in views, yellow shows medium variation, and orange shows a wide range of views). These numbers relate to the range of scores, are relative and indicative only.



Draft Freshwater Management Unit as at 8 November 2016			
	Rangitāiki Natural state	Mid-Upper Rangitāiki	Lower Rangitāiki
Swimming (5 groups; 21 commented)	4 - 5	3 - 5 Except Murupara sewerage site.	3 - 5
Natural form and character (5 groups; 21 commented)	4 - 5	2 - 4	2
The following four values are affected by the passage of native migratory fish species.			
Fishing (4 groups; 15 commented)	2 - 4 Eeling has been poor. Trout fishery has been healthy.	5 for trout. 2 - 4 including other species	2 - 4 Recently observed drastic whitebait decline.
Ecosystem health (4 groups; 15 commented)	2 - 5	2 - 4	2 - 3.5
Mahinga kai (5 groups; 19 commented)	2 - 5	1.5 - 5	1 - 5
Significant, threatened or rare indigenous species (5 groups; 18 commented)	0 - 3 Acceptable (5) for waterfowl.	0 - 4 Issue with habitat.	0 - 3 Due to habitat modifications.
For the following values people considered to be site specific.			
Wai tapu (5 groups; 19 commented)	1.5 - 5	0 - 5	1 - 4
Transport Tauranga waka (2 groups; 7 commented)	3 - 5	2 - 5	4 - 5

Summary of 'acceptability' of in-river freshwater values drawn from community group feedback

Rangitāiki Natural State draft freshwater management unit

- **Swimming** – Acceptable.
- **Natural form and character** – Acceptable. Natural character values can be improved by reducing invasive plants (both riparian and aquatic) and pest animal species for amenity, safety and reducing the risk of getting sick reasons. Manage effects of giardia in streams and rivers in Te Urewera. Okahu and its tributaries running into Okahu. Headwaters at Whakatāne River community want to know which stream is safe for water supply source.
- **Ecosystem health** – Depends. Some tributaries are good, and some covered in algae.
- **Mahinga kai and significant, threatened or rare native fish species** – Unacceptable, due to observed decline in tuna, koura, koaro, kokopu, galaxiids and whitebait, which could be caused by dams as fish migration barrier, sediment and trout predation. The recent flood events six months ago caused low fish numbers even now. Generally members are not concerned about food safety of mahinga kai species but the dwindling numbers.
 - **Fishing and ecosystem health** in Okahu Stream – Unacceptable, as no successful fishing and eeling is being observed.
 - **Longfin tuna** – Unacceptable, as migratory native fish, dams as barriers to life-cycle migrations. It has been difficult to find tuna since the flood events six months ago.
 - **Whitebait** (including **koaro**, **kōkopu** and **galaxiids**) – Unacceptable, as migratory native fish, dams as barriers to life-cycle migrations recognised as contributing to their decline. The trout predation was recognised as another factor. Recent flood events are followed by lingering low harvest in the tuna and whitebait fishing in Whirinaki.
 - **Koura** – observed the dwindling number of koura in Aniwaniwa and tributaries around it. No acceptability of the water conditions specifically rated for koura.
 - **Trout** – Acceptable, apart from one group noted trout population is diminishing in some streams. Some identified that native fish suffered from trout predation.
 - **Whio** – Acceptable. Numbers increased, and it is looking positive.
 - **Shags** – Different views. One commented a particular type of shag is significant for Ngāti Whare. One commented that the black shag population is in drastic decline due to loss of food source. Another commented that waterfowl are in decline due to loss of lower wetland. No acceptability of the water conditions specifically rated for shags.
- **Wai tapu** at Te Whaiti nui a Toi Canyon – Acceptable.
- **Wai tapu at Mangamate waterfall** – Acceptable, but concerned that the water source may be affected by its farmland catchment.
- **Wai tapu along State Highway 38** – Unacceptable, due to road works removal of habitats, and reducing supply of mahinga kai. Concerns with erosion, gravel flow and that other natural hazard events could also threaten the wai tapu values.
- **Some members noted that seeking tangata whenua knowledge about to wai tapu values was appropriate.**
- **Transport/tauranga waka** – Diverse views. Limited accessibility and navigability results in low popularity for using vessels on these waterways.

Mid-Upper Rangitāiki draft freshwater management unit

- **Swimming** (popular spots for water activities include Horomanga, Murupara, Aniwaniwa) – generally acceptable but room to improve. Members also expressed concerns about high level of sediment. For example, Lake Rotomā is a more attractive swimming location. In Aniwaniwa, the filamentous algae and aquatic weed made the experience less pleasant. **Swimming** below the Murupara sewage plant – unacceptable.
- **Rafting** (between Murupara and Galatea) – Acceptable, yet at times affected by seasonal and/or artificial low flow. Access can be difficult (road access and down river side banks/cliffs).
 - **Swimming / rafting suggestion:** access to river swimming could be improved with: better access (via private land and/or addressing overgrown weeds on riparian margin) and amenities.
 - Members noted people rely on science to know when it's unsafe for swimming.
- **Natural form and character** – neutral. The river form and character is no longer natural as it was modified by existing structures (eg. stop-banks, channels dams and farmland) and pest impacts on vegetation.
- **Ecosystem health at riparian margin** – Unacceptable. Some natural habitat and ecosystems were lost through channelling/redirecting the water. Members suggested the condition can be improved by restoring wetlands, removing weeds (blackberry, gorse and aquatic weed), including buffers between streams and forestry blocks, and riparian planting.
- **Fishing of native species / Mahinga Kai** – Unacceptable. Partly due to lack of fish passage for migratory native fish. Catch and release brought relief to up-stream fish migration. The habitats are also affected by sediment. Some current practices have reduced silt and sediment going into the river compared to the past – hopefully the trends are improving.
 - **Longfin tuna (eels)** – Neutral to unacceptable. Abundance has diminished with development. Commercial eeling may have an impact.
 - **Whitebait** (including īnanga, koaro, banded kōkopu and/or giant kōkopu) – Unacceptable. Numbers declining, even in the stream named Kōkopu.
 - **Koura** – Unacceptable. Mahinga kai value lost as very little koura population left. The sediment build up at Aniwaniwa could have destroyed koura habitat. Also gone in tributaries where it became still-water. More information is needed on koura.
 - **Kakahi** – Gone. Throughout the Galatea and Matahina, where its habitat is affected by silt.
 - **Watercress** – Acceptable. Good watercress that is plentiful and tastes good.
 - **Trout fishery** (and other introduced species) – Acceptable/good. Sustaining healthy trout fishery, although a large number of trout deaths were witnessed in summer 2015.
 - **Whio** (blue duck) – Acceptable.
 - **Kotuku** (culturally significant shag) and bittern – Unsure.
 - **Mallard and grey duck** – In decline. Reasons unknown.
- **Wai Tapu and Sites of cultural significance:** There are many culturally significant places, and while knowledge is held by some tangata whenua members, there is not enough knowledge in the group to identify all sites and locations. Springs, Mangamate waterfall and other places in rivers are used for ritual activities. Some members have knowledge in local wai tapu sites. A number of factors have impacts on **wai tapu** and sites of cultural significance. Some mentioned in the workshop include:
 - Tuna contributes to the spiritual value of this river. Migration barriers (eg. Rangipo migrating eels) and low numbers of tuna diminishes the wai tapu value
 - Modified landscape and waterways (flood schemes and dams) violated cultural sites
 - The artificial mixing of Rangitāiki water with Flaxy and Wheao
 - Discharge of treated human waste or effluent to waterway, eg. Murupara sewage pond discharge affected the taniwha sites, offensive nature of effluent entering freshwater.
 - Access to sites for making physical connection.
- **Transport/tauranga waka** – Diverse views. Different navigation recreation takes place downstream from Murupara, with potential conflict of use. The navigation can be hindered by tree logs, and access to the water can be problematic at places.


Lower Rangitāiki draft freshwater management unit

- **River swimming** is a popular activity in this draft FMU. Responses noted that conditions for swimming are between neutral and acceptable. Members expressed concerns about swimming during low flows (and/or summer low flows) particularly the possibility of higher pollutant concentration and insufficient water depth for bridge diving. Members noted this stretch of river experiences multiple pressures from water and land use activities.
 - **Swimming** at Te Teko – Acceptable. Bridge diving is popular among local children. Local families also swim close to marae.
 - **Swimming** near the Edgecumbe Bridge – Acceptable (selectively). People are worried about dairy factory discharge, so would swim upstream. Also the swift flow means this location is not popular for swimming.
 - **Swimming** at Thornton (river mouth) – Acceptable. Algae growth at Thornton is not pleasant, but still swimmable. People swim in summer in the salt water, and this is perceived to be cleaner water.
 - **Swimming suggestion:** The access to river swimming could be improved with: safe boat ramp, mitigate or alternative to ‘rock rip rap’ river banks, and remove some willows along the whole river bank.
- **Natural form and characters** – Neutral lending unacceptable. Due to various existing modifications, erosion, algae growth and lack of wetland vegetation.
- **Ecosystem health** – Neutral to near unacceptable.
- **Fishing** for introduced species – Neutral. Trout fishing exists but infrequent.
- **Fishing** for native species – neutral and near unacceptable, due to overfishing, change in habitat and change in hydrology through channelling and drainage system.
 - **Kahawai** – Acceptable, but with concerns that catches are down.
 - **Whitebait** – Unacceptable. Concerns about lack of spawning area, habitat area, overfishing, gradual and sudden decline in harvest numbers.
 - **Tuna (shortfin eels)** – number in decline although seeing improvements in fish passage.
 - **Watercress** – Acceptable.
 - **Kotuku** and **bittern** – in decline, believed to be due to wetland draining.
 - **Mallard** and **grey ducks** – In decline. Reasons unknown.
 - **Banded kōkopu** – Unsure. Need information.
 - **Mullet** – Unsure. Need information.
 - **Lamprey** – Almost gone.
 - **Parore** – Gone. Believed to be depleted by netting in the Thornton estuary.
 - **Kakahi** (cultural significance) – Gone.
 - One group pointed out there is not enough information for members to score
- **Wai tapu** – The acceptability depends on site specifics. Wai tapu sites near marae are used more often, and can be better recognised with sign-posts and better access. Many wai tapu sites may be gone or diminished in areas where the landscape has largely modified, which affected historical values of sites in rivers, in swamps, and original river courses.
- **Transport/tauranga waka** – Acceptable.

Attachment Two: Credible future exercise: typed notes

Comments provided to the Credible Future exercise on a map had been typed out.

- Rawa Tuturu (please use post its for wai tapu and/or sites of cultural significance)
 - Urbanisation – lower Rangitaiki
 - Wetlands – more
 - Invasion of people
 - Tourism growth
 - honey
 - oil
 - Mānuka/kanuka rather than pines
 - Ginseng
 - Lower phosphorus application
 - Veggie's – trend already occurring
 - Vertical feed cropping
 - innovative techniques
 - Technology assisted management
 - metering data specific
 - Precision agriculture
 - Tuna restoration centre
 - Not much change – CNI forestry in 10 years?
 - Wind farms: more, renewable, non-hydro, solar, micro grids?
- Housing – labour force
 - Fish farming – inundation warming
 - Different crops g3. Algae
 - Vege's
 - More groundwater for urban use
 - Renewal of TrustPower consent
 - Won't see large dairy farms on the plains



- More horticulture
 - climate change
 - more food needed
 - high value returns
 - Everywhere less dairy
 - More variation in land use type eg goats
 - Community Maara kai (gardens)
 - Environmental Gym. Physical wellbeing whakapapa wellbeing
 - Organic supplements for industries ie farming
 - Iwi / Hapū tourism
 - Tūhoe
 - Decrease use of chemicals
 - Replace bitumen with by product from forestry
 - Cropping growing other varieties rather ryegrass
 - Water storage – for more farming
 - (More) native trees
 - Land use practice: big change, good stewardship, major change in regulation
 - More science, more knowledge, better best practice
 - Decrease in smaller ag-enterprise.
 - larger farms etc
 - company ownership
 - due to compliance costs etc – versus smaller farms 'survive' better
 - People awareness – own resources and environment
 - Drivers of LU change
 - economical
 - environmental
 - Protect productive land!
- Change in fertiliser management plans – response to change in farming practices
 - Land practices change to consumer/marketing demand "Plate to pasture"
 - Kinleith Mill. Forestry processing
 - Low impact farming practices – for environment, eg less winter crop
 - Dairy goats / sheep
 - Less erosion better for water quality
 - High value – less water value
 - Dairy to cattle grazing/fattening
 - Less sheep more cattle? Or profitable stock class