Day 1: Small group report back on inputs into the Mediated Model

There were 4 groups (1) Science (2) Economics (3) Values (4) Solutions

(1) Science group

Information available: What we know and may be able to incorporate in the model

1. Interaction Trout and native species
2. Interaction Trout and periphyton
3. Impact of commercial harvest on native fish species
4. Relative impact of point and non-point history
5. Historical land use changes of categories that are available
6. Water quantity, allocation and use
7. Predicted management scenarios, impact on aquatic health
8. Biosecurity; existing and new pest threats, possum control, old man's beard / riparian management
9. Biocontrol
10. Sediment; what is the current understanding on sediment transport regimes, where does it come from, how is it measured, and what are its impacts on freshwater and estuarine systems and habitats
11. Estuarine and coastal species decline due to habitat change
12. Cultural values and knowledge; matauranga and species information, breeding, mahinga kai
13. Trends in Trout population over time and current state (from Wellington Fish and Game)
14. Trends in Native fish populations overtime and current state

Science gaps:

1. Cultural needs - eel catch in region and eel populations
2. Populations dynamics, fish and birds, and habitat change relationships in aquatic ecosystems. Don't understand the morphological change and aquatic and fish population change.
3. Whitebait catch

Questions:

Do we want to have a science forum on a different non-workshop day? Suggested speakers were proposed but it was decided not to go ahead with at this stage. There is a presentation from the Land and Water Forum in PN on October 28.

What is the link with the Accord goals? Is there sufficient science to address the accord goals?

Need to get information in a way that is easy to digest. How does the science relate to the action plan? What is the cause and effect?

(2) Economics Group:

What are the necessary interventions, to get the level of improvement we want, at what economic impact/cost, to who and how should this cost be funded (equity/priorities against other project options)?

1. Need clarity about necessary interventions.
2. What do the accord goals mean in value terms?
3. What existing interventions will show results, and when?
4. Who should pay?
5. How could the costs be shared?

If we get this right then:

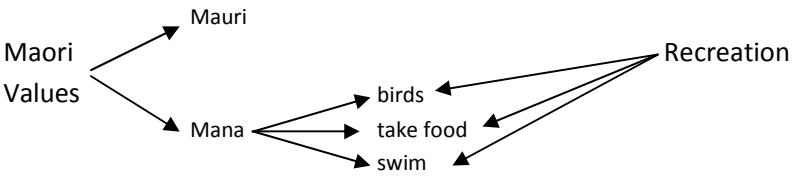
1. It provides an opportunity to optimize Treaty outcomes
2. Economists can compare options fairly
3. Ecosystem services value can be taken into account
4. Benefactors/exacerbators can be identified
5. More than carrots and sticks; some cost sharing may be needed- say with riparian planting
6. Bottom lines are exceeded now; some clean up needed TODAY. Quick wins may include fencing off of all waterways in dairy farms
7. Should be fully aware of impact on the regional economy of potential interventions.
8. Need to build resilience and diversity into our economy
9. Recognize national benefits; collaborate to attract govt dollars: e.g. $210 M to iwi for cleaning up Waikato River
10. Search out existing and cutting edge technology
11. Need to rank opportunity cost, net present value, benefits etc to judge interventions

Projects	Cost	Water quality benefit	Who should pay
a			
b			
c			
d			

(3) Values Group

What do values such as mana, social values mean? Regional pride and mana is reflected in how people see the river. Communication can improve perceptions of the river as it gets cleaner OR make more people aware that the current state is worse than they thought! Mauri – is a way to measure the quality of the waterbody. It is a collective (holistic) indicator. If the state of natural capital is high the mauri is also good.

There are different values associated with different parts of the river. Values are inter-connected (iwi and other). In regards to the intrinsic values of the river – improvements in natural capital should improve these values automatically.



Need to "Integrate values concept into model structure"

- Monitoring for social values – record the number of positive stories about the river and the number of people using the river.
- Economic values need to be recognized. As the river goes through a modified landscape we are focusing also on 'sustainable use'.

(4) Solutions Group

Point source discharges (26 Industrial and municipal discharges of concern Definition needs to be clarified. Would it be possible to combine 5 outdated and scattered waste water treatment plants into one and divert waste stream predominately to land (nutrients) and derive by-product from a bio-digester and generate energy? Cost sharing options? Reduction of N loss. Economies of scale possible but would transverse TLA boundaries.
Education of consumers: don't purchase products that end up in waste water – such as certain types of detergent. A third of all phosphorous use goes to making detergents. Shortage of phosphorous has the long-term potential to be more limiting than oil supplies.
Urban stormwater: How is it monitored?

Non-point source discharges
10% of hill country with steep slopes and certain soil types have been identified (in hectare and location) that have the potential to be managed in order to reduce 47% of sediment runoff and erosion to water. Farm plans (advice and service) for the 10% of hill country farms worst effected can potentially reduce sediment run-off by 25% incrementally over the next 10 yr.

A programme is underway with DairyNZ and Fonterra to improve efficiency of wastewater irrigation and fencing off of streams. If this happens what reduction in nitrogen leaching, and phosphorus and sediment loss, is likely to be achieved? Can Fonterra provide projected data and curves for the model to reflect this potential change?

River management

50% of sedimentation is assumed to come from low lands and river banks.
Gravel extraction and stop-banking cost $. The prevention of flooding costs $. Wetland restoration can give some floodplain back to the river and provide some storm/flood protection and biodiversity benefits. The build-up along the river and tributaries is such that areas would have to be taken out of commercial use. The scale of this solution is questioned. This issue then connects to (1) riparian zone management and fencing, (2) farm management practices to reduce leaching such as herd homes and artificial wetlands were proposed (however the positive impact may have a 80 yr time lag due to slow ground water flows (3) N fertilizer use limitations and timing, and (4) educational field days to stimulate best practices acknowledging that some farmers are simply better managers than others. Farmers at the wrong end of the bell curve have to be brought in line.

Discussion
Some gravel extraction sites along Rangitikei being looked at for wetlands.
Some interventions to make a farm environmentally sustainable may make the farming operation uneconomic.
Fertiliser industry now focuses more on selling services rather than maximizing fertilizer use.
Need to retain water in the landscape – HBRC water initiatives team looking at need for water in the economic systems and building storage dams for rural users.