

## FLAG MEETING NOTES: 26 June 2015

<b>Purpose:</b>	Takaka Freshwater and Land Advisory Group (FLAG)– Meeting 11
<b>Date:</b>	26 June 2015
<b>Time:</b>	9.30am-3.00pm
<b>Venue:</b>	Takaka Fire Station
<b>Present:</b>	<p><b>FLAG members:</b>            Graham Ball (GB)            Greg Anderson (GA)            Mirka Langford (MLa)            Mike Newman (MN)            Mik Symmons (MS)            Piers MacLaren (PM)            Matt Rountree (MR)            Margie Little (MLi- iwi representative on FLAG)            Martine Bouillir (MB- council representative on FLAG)</p> <p><b>Staff:</b>            Mary-Anne Baker (MAB - Environmental Policy Planner)            Lisa McGlinchey (LM -Environmental Policy Planner)            Joseph Thomas (JT -Resource Scientist - Water &amp; Special Projects)            Trevor James (TJ- Resource Scientist – Water Quality &amp; Aquatic Ecology)</p> <p>Rochelle Selby-Neal (RSN -Independent Facilitator)            Andrew Fenemor (AF -Landcare Research)            Julian Weir (JW – Aqualinc)            Tim Kerr (TK – Aqualinc)</p>
<b>Apologies:</b>	Tony Reilly (TR), Kirsty Joynt (KJ), Neil Murray (NM)
<b>Notes taken by:</b>	Lisa McGlinchey (supplemented by other staff)
<b>Definitions and Abbreviations</b>	FLAG = Freshwater and Land Advisory Group NPS-FM 2014 = National Policy Statement for Freshwater Management 2014 NOF= National Objectives Framework – under the NPS-FM TRMP = Tasman Resource Management Plan (the Plan) TWMC = Takaka Water Management Catchments SOE = State of the Environment WCO = Water Conservation Order application for Te Waikoropupu Springs and recharge area AMA = Arthur Marble Aquifer TLA = Takaka Limestone Aquifer TUGA = Takaka Unconfined Gravel Aquifer
<i>Note: records of discussion points have been grouped into similar topics and are not necessarily in the order discussed at the meeting.</i>	
<b>FLAG MEMBERS PLEASE NOTE:</b> If you have any questions or need anything between meetings, then please contact Mary-Anne Baker by email: <a href="mailto:marya@tasman.govt.nz">marya@tasman.govt.nz</a> or by phone ddi 03 543 8486.	

## **Purpose of Meeting**

- Understand the current approach to water quantity management in the TRMP
- Understand the process for deciding flow regimes, limits and water allocation management, using local examples
- Water wheel – demonstrate the various sensitivities thorough-out the Takaka Catchment/s.
- Start work on indentifying attribute thresholds

## **Welcome and Karakia**

RSN welcomed the group and MLI lead the FLAG in the karakia.

## **Check in**

***PM: I rang up John Bailey at the salmon farm to see what water quality data they had– they do not keep track of temperature, but had lots of other data. This data could be useful to add into the mix. They are reluctant to pass on data, but were interested in presenting to FLAG – I said I would pass this on to the group for consideration.***

***TJ: we have their data for the upstream site – which they have been happy to share – we can look at this data if desired – we have used this data in looking at the water clarity aspects.***

## **Session 1 – Updates**

### **Gunsboro consent application update (Mary-Anne Baker)**

#### **Key points:**

- *Gunsboro has made a new water permit application both to correct an historic mistake and to enable an increase in irrigated area. They had an earlier permit, first granted in the 1980s. When the metering regulations came in about two years ago, they realised they had made a mistake and their permit did not allow enough water.*
- *Because they had in the interim also purchased more land their initial application included the existing additional needs, plus the extra for the new land. This is what was notified. However since then they have reduced the application to the additional amount needed to cover the existing use.*
- *The Gunsboro application is going to hearing in September 2015 with volumes being sought returning to the volumes they had in 1980s.*
- *The FLAG is not involved in the consent processes and have not submitted so cannot really be involved.*

#### **Questions/comments arising:**

##### ***Where is the intake?***

*On the Waingaro river*

##### ***Have they queue jumped?***

*Technically they have jumped the list, but their application is about their existing use, not new use.*

##### ***Does that mean they have been taking more water than consented since?***

*No – they only realised they didn't have enough when metering occurred a couple of years ago.*

*There has been a change in land ownership which has added complexity.*

##### ***Does this open the door for others on the waiting list?***

*Applications will still need to go through the consenting process*

**If granted will the new consent be subject to the flow limits and allocation limits the FLAG are setting?**

*The plan rules can be retrospective – we won't really know this until we look at the numbers  
Regional plan rules can be retrospective and all consents are issued with review clauses.*

**How long are consents for?**

*15 years.*

**Action:** FLAG to consider review clauses when looking at plan rules.

**Are impacts on Te Waikoropupu Springs also considered in addition to the consent's effects locally on the Waingaro River?**

*Yes.*

**Employment Statistics (Mik Symmonds)**

**Key points:**

- *Mik has looked at the Golden Bay and Takaka statistics*
- *There has been a downward trend (8% drop) in people employed in primary industries (fishing, forestry, agriculture). The statistics don't break the numbers down any further.*
- *Sales in retail etc have had an increase in people employed (42% increase).*

**Questions/comments arising:**

- *People working from home via the internet are not being picked up in these statistics.*
- *The figures don't reflect the economic value of the industries.*

**Feedback on Values and Management Objectives document (Lisa McGlinchey)**

*LM provided the FLAG with a copy of the feedback received.*

**Key points:**

- *Two responses received in the feedback period (11May-19June) – both talking about issues other than the values and management objectives document itself. One did note they were generally positive about the draft document.*
- *The consultation web page had 81 unique viewers – this number includes any FLAG members or staff looking at the site from outside of Council - so around 70 other people looking.*

**Questions/comments arising:**

- *The feedback I have received has been "When are we going to get a say on the process?" The current round of consultation is high level and not really at a stage for them to feed back on. They will comment when the numbers come out on water limits, etc.*

**Water Conservation Order update (Mary-Anne Baker)**

**Key points:**

- *Mary-Anne Baker, Joseph Thomas and Margie Little had a meeting this morning with Andrew Yuill to discuss the Water Conservation Order and FLAG processes*
- *Had a Good discussion – points include:*
  - *FLAG can do the work to set limits and standards*
  - *The WCO can provide an additional level of protection to Te Waikoropupu Springs.*
- *The applicants have agreed to go back and talk to their groups about how they see the process moving forward from here*
- *Both were receptive to letting the FLAG do the upfront hard work and then working together on a future WCO application to provide additional protection*

- *Andrew suggested there may be a way to include those in the group he is representing further in the FLAG process – possibly with an additional FLAG member or through targeted involvement when relevant discussions being held.*

**Questions/discussion arising:**

**We have spent the better part of a year learning the background – anyone coming into the group now wouldn't have this.**

*Could they be part of the group in being involved in discussions or as an information resource, but not perhaps as a decision making role?*

*I don't think they are asking to be co-opted onto the group – more to make use of their expertise in FLAG discussions.*

*In our Terms of Reference – we have quite a bit of freedom to involve others into the process to provide information.*

**Group decision on issue:** *FLAG to include Andrew Yuill in the FLAG process in a targeted way to improve his group's involvement in the FLAG process.*

## **Session 2 – WaterWheel**

### **WaterWheel modelling for the Takaka Catchment**

#### **Julian Weir & Tim Kerr (Aqualinc) and Andrew Fenemor (Landcare Research)**

*Tim gave a presentation outlining the Waterwheel outputs using the attributes and scenarios determined at previous FLAG meetings.*

**Key Points:**

- *Tim has been working on the WaterWheel work for the past few months.*
- *The WaterWheel is looking at the whole of the water management catchment and we have picked particular attributes at particular sites to do the modelling work.*
- *We are hoping the work being done and lessons being learnt locally on the WaterWheel will be of use elsewhere in NZ.*
- *The attributes and numbers used in the WaterWheel have been those identified previously in the FLAG process – however we need the FLAG to make the value judgements to determine what is acceptable or not for each attribute to drive the colours shown in the WaterWheel.*
- *The WaterWheel outputs are available online – staff to forward link to FLAG:*
  - *You can pick the scenarios and choose which attributes the WaterWheel shows.*
  - *[Note if two or more internet explorer windows are opened at once, you can then open multiple scenario WaterWheels at once to compare them on screen]*
- *The WaterWheel can be used for the public to access and see what the FLAG have decided, without needing detailed knowledge of the workings behind the WaterWheel.*

**Questions/comments arising:**

**How have you determined when the WaterWheel spokes turn yellow, red or green?**

- *Aqualinc have put in numbers currently to create the examples, however it is up to the FLAG to decide which thresholds are acceptable (which are red, yellow and green etc) based on national guidance, local science and expert guidance.*
- *On the web page, the menu item on attributes gives information on how the values for the spokes and criteria for these have been set – it is a working 'document' and is still being updated.*
- *Aqualinc needs the FLAG to determine what does yellow and orange mean – eg does yellow mean it is just good enough, or orange is not quite, etc - or do they mean something else.*

***I don't think people will understand this just looking independently at the waterwheel online.***

***Orange is caution in most people's minds...***

*Yes – but does caution mean good enough or not good enough?*

***Does this relate to the A-B-C-D in the NOF?***

*Yes – that is why there are four categories.*

***The FLAG needs to determine what the attribute levels mean for each attribute (eg good, not so good, bad etc) to then be able to justify what colours come up in the WaterWheel.***

***There is a question of scale. Won't the WaterWheel look different if applied to different parts of the catchment?***

- We have taken attributes representative of different sites around the catchment and used these to represent that attribute for the whole catchment.*
- The sites selected are particularly sensitive to the attribute.*
- It is a work in progress to refine.*

***Can you change an attribute value and have it change the others?***

*No, it is scenario driven. But you could create a scenario that results in the levels you are after for an attribute (eg reduced nitrates) and then look at what settings result in this level and the impacts on other attributes – working backwards from the goal.*

***How is irrigation increasing groundwater if the farmers are efficiently irrigating - and only just putting on enough to allow for evaporation, etc?***

*It is almost impossible to get absolutely efficient irrigation.*

*Those that are using highly monitored systems will be using less water, but others not doing this would use more. Also if soil is already wet from irrigation then any rainwater will infiltrate more readily.*

***Isn't the amount of irrigation very small relatively to rainwater?***

*Yes it is, so the numbers don't seem to make sense. It seems counterintuitive.*

***We need to look at what is driving these numbers in the WaterWheel. In this case the groundwater in this situation relates to the summer low flow groundwater levels which could be impacted by irrigation rates as there is low rainfall over this same time.***

***RSN: Suggested FLAG members go online and have a play with the WaterWheel to look at what makes sense and what they don't understand, to feed back to Aqualinc staff.***

**Action:** FLAG to go online and play with WaterWheel and provide any comments or feedback to Aqualinc staff by the 10<sup>th</sup> July.

**Action:** Staff to email link to WaterWheel webpage to FLAG.

***Can those attribute grades that are associated with existing established frameworks (eg NOF) be highlighted in the system?***

*Yes – we could look at colouring the numbers differently that are from the NOF, etc. These aspects are also listed in the “how it works” section on the webpage.*

***Would it be a good idea to set up a sub-group to look at this work further – for those who are particularly interested in the numbers etc?***

*General agreement that this would be a good idea.*

**WaterWheel modelling – thresholds for WaterWheel attributes (attribute grades)**  
**(Julian Weir, Tim Kerr and Andrew Fenemor)**

The group had a discussion on setting attribute grades and colours in the WaterWheel using the example of nitrates in the National Objectives Framework (NOF).

**Key Points:**

- Suggest attribute colours are linked to the NOF framework ie: Green=A, Yellow = B, C= Orange, D=Red.
- Nitrate toxicity in the NOF is  $A \leq 10$ ,  $B1-24$ ,  $c=2.4-6.9$ ,  $D > 6.9$
- With hardness scaling (refer Chris Hickey memo) the thresholds for toxicity increase much higher for Te Waikoropupu Springs.
- Currently spring levels 0.3-0.5mg/l

**Questions/comments arising:**

**What did John Stark and Chris Hickeys' reports say about nitrate?**

- Chris Hickey's work identifies that with the water hardness in the springs the toxicity thresholds increase significantly (tenfold) meaning the nitrate is not as toxic at higher concentrations
- John Stark's reports recommended looking at the DRP (Dissolved Reactive Phosphorus –ie the phosphorus available to plants) and the Nitrogen:Phosphorus (N:P) ratio. The springs are DRP limited.
- John Stark also said his recommended thresholds were precautionary.

**We need to be precautionary in our approach with respect to Te Waikoropupu Springs.**

**If we set the nitrate grade of 0.5 at orange then it suggests the need to trigger further monitoring, but as it is not red it suggests there may not be an issue yet.**

**Would we expect the DRP levels to change much in Te Waikoropupu Springs?**

Sediment inputs could increase DRP. If there were means for sediment to enter the springs this would be an issue.

There are other aspects that affect periphyton growth in the springs – eg (macro-invertebrate) grazers, shading etc.

If we think that the N:P ratio would be the more sensitive attribute, we could use this instead. [Post meeting clarification TJ: The N:P ratio could be useful as a supporting attribute, but it has to be used in conjunction with nitrate and dissolved reactive phosphorus concentration because the N:P ratio could remain similar over time, but nitrate and DRP concentrations increase (both have to increase or else both stay the same if the ratio is the same) with the likely result being increased filamentous green algae cover].

**We are looking at two issues – Nitrates coming through shallow aquifers that may affect swimming spots such as Payne's Ford and the longer term nitrate levels in the spring water at Te Waikoropupu Springs.**

- The periphyton attribute on the WaterWheel is for at a site on the Motuipipi River
- This attribute (periphyton) should be measured at Payne's Ford
- We need more than one monitoring site for some attributes to reflect the different issues across the catchment. Eg periphon at Paynes Ford and others. It feels like the WaterWheel modelling is too imprecise to debate attributes at single sites when there are other issues elsewhere.

**The FLAG needs to determine the A-B-C-D grades for each attributes – or ask expert staff to determine these values. Need to ask yourselves what you need to know - for example on Te Waikoropupu Springs nitrates - to make these decisions. Does this make sense?**

- Yes, but it is extremely difficult as there are so many unknowns and incomplete information.
- Yes – we are trying to put a peg in the sand.
- The NPS-FM does give guidelines that the goal is to maintain or improve water quality, not allow declining water quality. It would be nice to set our goals high.

**I suggest levels for Te Waikoropupu Springs are:**

0.00-0.44 = green

0.44-0.70 = yellow

**I think our green level should be lower – as we have an aspirational goal and the data suggests we have had some impact on nitrate levels already.**

*What about using the lowest level ever measured?*

*Perhaps not the absolute lowest, as there have been some odd measures in the past [with potential data quality issues].*

**The springs have been 0.5mg/l in the past and have been unaffected then. There has to be some rationale to the numbers uses – if it hasn't been affected at 0.5mg/l then use this number instead of 0.44 which is just a number [from a guideline].**

**Group decision:** group discussion on nitrate issues and final numbers suggested for use in the WaterWheel scenarios for Te Waikoropupu Springs resulted in the following attribute states:

Band	Nitrate Range (mg/l)	WaterWheel Grade colour	Justification
A	< 0.37	Green	5th percentile of existing data and where the concentration was 20 years ago. This is the aspiration of where we want to get to.
B	0.38 - 0.49	Yellow	Current state that recognises no adverse environmental effect - ie no conspicuous filamentous green algae growth (toxicity will not be an issue), no effect on water clarity.
C	0.50 - 0.99	Orange	While it is unknown at this stage, this is the concentration band where there could be the beginnings of adverse effects. While John Stark finally recommended 0.44 g/m3 as the limit, he suggested that it is possible that filamentous green algae growth may not be an issue until over 1.0 g/m3.
D	> 1.00	Red	This is the bottom line where adverse effects are likely above this level.

**Are we talking about when flows are normal or not? Are we talking about when the river is full of water or when they are in low flow at summer time?**

We are not talking about flows and we are talking about the springs. The number is an annual average [similar to the nitrate standard in the NOF].

**Should we be measuring the clarity in the springs as otherwise we are operating in a vacuum of information on this aspect?**

- Nitrates do affect algal growth which affects clarity, but we would look at clarity and nitrate levels separately for putting into the WaterWheel or in the TRMP.
- Clarity is one of the outstanding values of the Springs and we should acknowledge it.
- We have data from the salmon farm consent monitoring site 600m downstream of the Te Waikoropupu Springs. This is showing a very small decline in clarity.
- TJ has had discussions with the salmon farm about using their clarity meter (transmissometer) to undertake biannual measurements of water clarity. Using this

meter is much easier than black disc measurements in a site like this (where you need divers, mirrors, special permission etc). [Post meeting note TJ: this sampling has now been confirmed, with the first measurements to take place in mid July]

**Could we correlate the springs clarity to the salmon farm site?**

Yes, but it would take years to get sufficient data to do this.

- NIWA is interested in clarity measurement and has a telemetered system for measuring this that could be used. [Post meeting clarification TJ: To deploy a transmissometer continuously would be very expensive and unlikely to be necessary. It is also questionable whether the extra cost of telemetering the monitoring site would be worth the cost.]

**Action:** Staff to look at options for getting clarity data at the Te Waikoropupu Springs.

**[Given the time lag] We are looking at water clarity from historic land uses aren't we?**

- There is some lag time, however we are unsure what correlation there is with land uses and the values at other sites in the catchment.
- Don Mead thought the time lag could be less than a year.
- There seems to be multiple science opinions on this aspect.

**RSN: Given we need to go through the grade setting process for each attribute for the WaterWheel and for each attribute used in the TRMP, does the FLAG want to use a sub-group to look at the numbers?**

General agreement that a sub-group should look at the numbers and then come back to the rest of the FLAG.

**Action:** FLAG to let staff know if they are keen to be on the Attribute Grading sub-group.

**Action:** Staff to let FLAG know of the date for the Attribute Grading sub-group meeting before the next FLAG meeting *to consider thresholds for attributes following FLAG feedback on the 10<sup>th</sup>. (Note – school holidays mean several staff are not available in the two weeks following the 10<sup>th</sup>. We will arrange for the attributes meeting after the next FLAG meeting on the 24<sup>th</sup> July.)*

**Scenario Modelling - (Julian Weir)**

Julian Weir gave a presentation outlining the previous scenario modelling against a new scenario of 'natural state'.

**Key Points:**

- Aqualinc have attempted to run a 'natural state' scenario - this excludes the Cobb dam, includes natural forest cover, and has no consumptive uses. This has been added to the previous 5 scenarios.
- A graph was presented showing the nitrate levels under the natural, no consumptive takes, status quo and double-irrigation scenarios.
- JT has raised concerns of calibration issues with the model – another five years of data may change the outcomes
  - **Are the predictions / trends still ok to use?**
    - The value to be had in the scenario comparison is looking at trends not at the absolute numbers
  - **Is there a confidence interval that can be added?**
    - Yes – the predictions are coarse so these intervals would be quite big
- The numbers from these scenarios can be put into Tim's model for the WaterWheel
- This information is useful for discussions on flow in Te Waikoropupu Springs – for example - what is our base starting point?– is it the natural state flows or the current flows which include the Cobb dam effects?
  - We need to be careful - the Cobb dam makes a difference at average flows, but does not have much of an impact at very low flows.



- So do we use the 10yr-Low Flow or other statistic instead?
- **Should this be something determined by the Sub-group?**
  - Yes.

**Questions/comments arising:**

**So is the graph saying the levels of nitrate in the Takaka River are much lower than in the groundwater?**

*JT: Yes – many people don't realise that groundwaters are usually higher in nitrate than surface waters.*

**Action:** Julian Weir to send though copies of his presentation slides (the tables) to FLAG.

### **Session 3 – Allocation Management and Process**

#### **Presentation: Determination of MALF and Flow Probabilities**

**(Lisa McGlinchey and Joseph Thomas)**

LM gave a short presentation on how the 7-day Mean Annual Low Flow (7day-MALF) and the 5year-7day Low Flow are calculated.

**Key Points:**

- The flow statistics are based on actual data collected.
- The “7 day” low flows are based on averages of lots of 7 days worth of flow data over all the years of data available.
- The 5 year, 7 day low flow is a probability calculation – the 5 year part refers to the probability of a 7day Low Flow occurring on average once in five years (or in other words a 20% chance of occurring each year). It is based on probability of the low flow occurrence using historic data.

**Questions/comments arising:**

**There is an influence of El Nino and La Nina and we need to consider their 10 year oscillations - I question the use of the one in ten year frequency to use in decision making – does this take into account these types of oscillations?**

*ML: The flow statistics are calculated over the entire data set available so it doesn't matter whether the 5 or 10 year statistic is chosen as both use the entire data set available.*

**Does the following presentation say why we use the Mean Annual Low Flow (MALF)?**

Yes.

TJ: aquatic ecologies “like” MALF because that is what they are used to. They like the average – they don't do so well at extremes (eg very low flows), but they like average levels.

#### **Presentation: Allocation Process Overview (Mary-Anne Baker, Joseph Thomas, Lisa McGlinchey)**

**Key points:**

- Water quantity is being looked at first, and water quality will be looked at next - this may change the outputs from the quantity phase to ensure the values are protected.
- The Allocation Triangle looks at considerations of environmental flows, security of supply and allocation limits.
- There is a choice on how we manage low flows and how the minimum flow is used – if it will be a trigger for rationing or cease take or if these occur above the minimum flow.
- Even if there is a cease take situation, permitted activities such as for human and stock drinking water will continue to occur during droughts.
- Current methods for management of low flow include rationing regimes, rostering regimes, cease takes in consents, and water shortage decisions under section 329 of the RMA.

- Different rivers respond differently during droughts – some respond (flows drop) quickly, others respond slowly – the same management regime may have different impacts on different types of rivers.
- In considering low flows, we need to look at a range of values including ecological values, social/cultural, livelihood and economics (eg stock water, tourism), local and downstream requirements, and water body connections.
- Staff are recommending a percentage of MALF approach is used for determining environmental low flows - based on national research and expert guidance for local rivers.
- The TRMP has a standard security of supply policy which sets a security of having consented water takes cut up to 35% with a chance of 1 in 10 (ie. Step 2 rationing is hit in a ten year drought).
- The TRMP has a default allocation policy which is used if there has been no minimum flow or allocation limit set in a catchment. This default allocation is 10% of the 5yr-7day Low Flow – example shown for Onekaka Catchment.
- The shorter the data period you have, the more the flow statistics change each year – as you have longer data periods the flow statistics stabilise year to year.
- Determining the allocation limit looks at what water is above the minimum low flow that could be allocated. It then looks at what portion of this can be allocated while meeting the desire security of supply.
- Summary:
  - Our range of environmental flow considerations identify a low flow to protect the values.
  - The low flow is used to trigger either cease take or rationing.
  - The amount above the low flow is available for allocation.
  - The security of supply sets the allocation limit – what water is actually allocated.
  - The priority policies [in the TRMP] determine how rationing and cease takes affect different uses and when Water Shortage Directions might be used beyond the last rationing step.

#### **Questions/comments arising:**

**In some cases, if you have a low flow and you trigger rationing/cease take – after this the river will still drop naturally if the drought keeps going?**

*Yes, if there is no rain then the river levels will continue to naturally decline even after all consented takes are ceased.*

**Does the salmon farm consent have a cease take?**

*They must keep a certain flow in the river and have a specific rationing regime to manage this - and if a drought was bad enough they would have to cease take in order to maintain those minimum flows.*

**If people apply for a consent for one end use of the water – can they then use the water for any use? Is the end use taken into consideration in considering consent applications?**

*End-use may affect the pattern of use over a year – but allocation limits are based on use between Nov – April and all permits are subject to the same rationing where applicable. Considerations are made regarding soil type and appropriate irrigation amounts for these. The applicants do have to demonstrate need for the water.*

**So if the consent application was for water storage – would they still need a consent?**

*They would need one for damming and diversion of water and filling the storage. We did have a controlled category for takes from storage, but the water metering regulations made this difficult and takes from storage are now permitted provided related damming or take to storage consents are held..*

**Are there rules that determine when users can take water for storage?**

*Yes, they will be controlled by the allocation regime – if they are taking between November and April they will be constrained by the allocation policy. If they are taking outside the constraints of the allocation regime or during the rest of the year (eg winter) we look allow for takes of 10 % above the median flows and ensure takes to storage or damming do not significantly impact the natural flow regime.*

*We have some default approaches for assessing takes to storage- if applicants want to challenge these numbers they would need to come up with justification for different numbers.*

*We are focussing currently on low flows and may need to come back to look at management of high flows also.*

**How is climate change consideration incorporated into the management regime? - the duration of low flow events is important.**

*This can be included in which type of flow statistic is used (eg the 1in 5 year low flow vs the 1 in 10year) as this is a risk based assessment. The longer a drought the more likely the rationing steps and cuts will be reached.*

**What happens to consents that appear over-allocated with current calculations when they have to reapply?**

*It depends on the situation, in the Onekaka example there is a high cease take threshold which is above the current MALF for the site, so reducing their allocation limit would not necessarily affect the management regime used at low flow periods.*

**How do you correlate the Onekaka site with the Anatoki River flows?**

*Because we have measured flows through gauging in the Onekaka River and we can look at how these relate to flows measured in the Anatoki River at the same time. We use the Anatoki River as a proxy for Onekaka because the Anatoki site has a telemetered flow meter which is accessible on the council website and can help show users in real time when they need to instigate consent conditions, such as cease takes or rationing .*

**Is there any case law on the approaches uses? – is the approach taken by Tasman consistent with other approaches used nationally?**

*MAB: Regarding quantity management Tasman tends to be a leader. I have not seen any case law specifically on aspects like security of supply.*

*AF: In Canterbury they use the term ‘reliability’ rather than ‘security of supply’ – then tend to work to a 97% reliability of supplies.*

**Is there potential - in a more litigious society – could there be a possibility of users suing council if their security of supply is not met?**

*No – we don’t guarantee water to users, Council has no control over whether droughts occur. We use the probability approach to try and give some certainty for users in what water might be available.*

**Presentation: Setting Ecological Flows (Trevor James)**

Trevor James gave a presentation on the possible methods to assess the ecological aspects to minimum low flows.

**Key points:**

- TDC have a specific recommendation from Cawthron (*A Framework for Flow Management in the Takaka River Catchment -Roger Young 2006*) for the Takaka western coastal catchments to use 90% of MALF as an ecological limit.
- There are two key methods for assessing relative ecological value in a particular waterbody or reach – the Index of Biological Integrity (IBI) and the Rivers Values Assessment System (RiVAS)

- The Fish-IBI compares fish communities at a site of interest with the reference baseline for that river type (what it might have been like without any impacts) to determine how 'good' the river state is (based on elevation and distance from the sea).
- The RiVAS is a method that assesses the values in a river system and ranks these with other rivers value assessments to identify what sites are significant at a local, regional and national level for a specific value. The RiVAS method has been trialled on eight different values.
- Both the IBI and RiVAS assessments have identified the coastal catchments as having very high ecological value - they are significant sites.

### **Index of Biological Integrity (IBI)**

- The IBI looks at the numbers of native fish species, guilds (eg riffle or pool dwellers), tolerant species and invasive species at a site.
- Coastal areas tend to have higher numbers of species than inland - higher elevation sites.
- Onekaka (at Shambala) has the highest number of fish species recorded in NZ (12, 13 if including trout).
- The IBI scores for Takaka river sites vary from 'good' in the upper catchment to 'excellent'. The more coastal areas tend to have higher scores.
- If we were to rank IBI scores nationally, it would be likely that the Tasman rivers would rank above average and the 'excellent' ones would be 'more excellent'.

### **Rivers Values Assessment System (RiVAS)**

- RiVAS uses an expert panel approach to identify different reaches and attributes and thresholds to assess the sites.
- The sites are then ranked and determined which are locally, regionally and nationally significant.
- RiVAS looks at fish abundance, fish spawning, migratory species, declining species, strongholds (key populations), river flow, water quality, introduced species, migration barriers, and riparian shading.
- The draft of the RiVAS process has assessed Tasman Streams and has ranked the Coastal Golden Bay streams at No.3 and in the "nationally significant" band with Takaka catchment at No.17<sup>th</sup> and classed as regionally significant.

### **Determining optimum flows and habitat**

- Different fish types, as well as different life stages (eg eggs, juvenile and adult stages) will have different habitat needs and associated optimum flows
- Hydraulic habitat modelling can be used to assess different habitats available at different flows
- We don't have enough money to do full hydraulic habitat modelling everywhere, so we are looking at developing a more rapid assessment approach with assistance from Roger Young (Cawthron)

### **I thought the Te Kakau stream was really bad quality – yet it comes out with a good IBI – how is this?**

*The data input for this stream was for a spring fish survey. During good flows several species head up this stream and use it, but they leave again during January-March when plant growth and metabolism is greatest and dissolved oxygen levels drop.*

### **Can the IBI be used as an attribute?**

*Yes it could.*

**If we improved the habitat – would the fish populations in impacted streams recover up to the expected levels?**

*Some of the degraded creeks could be improved from 'good' to 'very good' or even 'excellent' IBI scores. We could also see improvements in fish abundance levels – which the IBI doesn't take into account.*

**Are there any bad scored sites?**

*I haven't seen any yet – but we haven't assessed everywhere.*

**Are there average and bad scores for IBI?**

*Yes. At sites around 80-200m elevation and 20-40km inland with 1 fish species score "very poor" and with 2 species at site scores "poor". At times Takaka at Harwoods has scored "very poor" (eg Feb 2000), In Nov 2014 no native fish were found at the Harwoods We have not found anything less than "good" scores for the coastal streams.*

*We have large areas without any fish – such as Gorge Creek and upper Waitui – this is natural – ie if there is a natural fish passage barrier (eg waterfall) below the site.*

**How do the RiVAS scores for the Takaka Rivers relate to the classification of local, regional and nationally significant?**

*They are at the highly significant level, (on a scale of none, low or local, medium and high) but the RiVAS has yet to be done nationally, however it is likely they would rank moderate or moderate-high in comparison with other rivers in NZ – particularly given the IBI scores.*

**In terms of the hydrological modelling approach for habitat and flows assessment – has this been done for any of the sites in the Takaka catchments?**

*Yes there have been three sites - Onekaka (for the hydro- electric consent), Upper Takaka (related to the Cobb hydro-electric consent) and Motupipi (related to a water take consent).*

**If we only have this data for three sites – would we use this approach?**

*We are trying to set up a more rapid habitat assessment approach to enable us to do this elsewhere. We have Roger Young from Cawthron to assist with this work.*

**RSN/MAB: where to from here...**

***One of the things to come out of this is that we agree to manage the coastal streams as having a high level of significance and set up a sub-group to look at the minimum flows and allocation limits that reflect this significance.***

***Does the group want to use a sub-group to engage with Roger Young, or do you want staff to determine this with Roger and report back to the FLAG?***

*It would be good for someone like Neil Murray to be involved in these discussions.*

*General agreement this would be a good approach.*

**Action:** *Staff to see if Neil Murray available for a meeting with Roger Young and staff (environmental flows, expert advice).*

***Do we have baselines so that we can see what the effects will be if we choose one percentage over another when setting minimum flows and allocation limits?***

*Yes – this could be part of the discussion with Roger Young.*

**RSN – summary of meetings / actions up to the next meeting:**

- *Meeting before the next FLAG of the attribute grading sub-group (post meeting note – school holidays and staff commitments mean this likely now to happen after the next meeting)*
- *Meeting of staff with Roger Young and Neil Murray (environment flows, expert opinion)*
- *Upper Takaka and Pariwhakaoho example and process to be looked at, at the next FLAG meeting (24July).*

**Do we need the group to look at the environmental flows, if this needs to be based on expert input anyway?**

*Yes, it still takes expert opinion to assist in determining where the optimum flows are, but while you will have this information to advise you, the FLAG still needs to make the decision on the approach and numbers used [and the impacts this has on other values].*

RSN provided the FLAG with information on the Onekaka and Upper Takaka current allocation limits and consented volumes for consideration before the next FLAG meeting.

**Action:** Staff to send AMA example information to FLAG before the next meeting.

**Action:** FLAG to look at the Pariwhakaoho example (in the presentation handout) and the Upper Takaka/AMA example (to be emailed) before the next FLAG meeting (24 July).

**Further comments on the day?**

RSN called for any further comments from the group on the meeting.

- MAB expressed appreciation to Lisa McGlinchey for her work on the explanatory drawings in today’s presentations.
- The FLAG expressed appreciation to the time and effort spent by staff behinds the scenes to inform the meeting discussions.

<End of meeting>

*[Post meeting note - meeting dates as determined at the previous May FLAG meeting:*

- 24 July (examples for allocation limit setting)
- 21 August
- Possible September date of 25 Sept - this is the Friday before the September school holidays begin]

**Action Points – Council Staff/Facilitator/Advisor**

No.	What	Who
1.	Staff to email link to WaterWheel webpage to FLAG.	MAB
2.	Staff to look at options for getting clarity data at the Te Waikoropupu Springs.	TJ/J T
3.	Staff to let FLAG know of the date for the Attribute Grading sub-group meeting before the next FLAG meeting.	MAB
4.	Julian Weir to send though copies of his presentation slides (the tables) to FLAG.	JW
5.	Staff to see if Neil Murray are available for a meeting with Roger Young and staff (environmental flows expert opinion).	MAB
6.	Staff to send AMA example information to FLAG before the next meeting.	JT

**Action Points – FLAG members**

No.	What	Who
7.	FLAG to consider review clauses when looking at plan rules.	ALL
8.	FLAG to go online and play with WaterWheel and provide any comments or feedback to Aqualinc staff by the 10 <sup>th</sup> July.	ALL
9.	FLAG to let staff know if they are keen to be on the Attribute Grading sub-group.	ALL
10.	FLAG to look at the Pariwhakaoho example (in the presentation handout) and the Upper Takaka/AMA example (to be emailed) before the next FLAG meeting (24 July).	ALL

**Action Points – FLAG Sub-groups**

No.	What	Who
11.	none	

## Scheduled FLAG and FLAG Subgroup meetings

<b>Date</b>	Friday 24 July 2015 (FLAG Meeting 12)
<b>Time</b>	9.30am -3pm
<b>Venue</b>	Takaka Fire Station
<b>Agenda Items</b>	Allocation examples

<b>Date</b>	Friday 21 August 2015 (FLAG Meeting 13)
<b>Time</b>	9.30am -3pm
<b>Venue</b>	Takaka Fire Station
<b>Agenda Items</b>	TBA

<b>Date</b>	TBA – possible date of 25 September (FLAG Meeting 14)
<b>Time</b>	9.30am -3pm
<b>Venue</b>	Takaka Fire Station
<b>Agenda Items</b>	TBA

## Information and resource documents identified during meeting

<b>Date</b>	<b>Title</b>	<b>Author/Source</b>
2006	<i>A Framework for Flow Management in the Takaka River Catchment -Roger Young 2006</i>	Cawthron, Roger Young

*\*Key documents available electronically will be added to the online PDF document bibliography.*

## Issues or topics identified during meeting for future consideration

<b>Topic/Issue Description</b>	<b>Requester</b>
FLAG to consider review clauses for consents when looking at Plan Rules	ALL

*\*Issues or topics unable to be addressed at the meeting, but requiring future consideration will be recorded in the Takaka FLAG 'Information Eddy'.*