

TAKAKA FLAG MEETING 15 NOTES: 6 November 2015

Purpose:	Takaka Freshwater and Land Advisory Group (FLAG)– Meeting 15
Date:	6 November 2015
Time:	9.30am-3.00pm
Venue:	Fonterra
Present:	<p>FLAG members: Graham Ball (GB) Mirka Langford (MLa) Mik Symmons (MS) Piers MacLaren (PM) Hika (Matt) Rountree (HR) Kirsty Joynt (KJ), Greg Anderson (GA), Andrew Yuill (AY) (co-opted member) Martine Bouillir (MB- council representative on FLAG)</p> <p>Staff: Mary-Anne Baker (MAB – Senior Environmental Policy Planner) Joseph Thomas (JT -Resource Scientist - Water & Special Projects) Steve Markham (SM – Environmental Policy Manager) Lisa McGlinchey (LM – Environmental Policy Planner)</p> <p>Other Rochelle Selby-Neal (RSN -Independent Facilitator) Roger Young (RY - Cawthron Institute)</p>
Apologies:	Margie Little (MLi- iwi representative on FLAG) Neil Murray (NM) Mike Newman (MN) Tony Reilly (TR) Andrew Fenemor (AF – Landcare Research) Trevor James (TJ- Resource Scientist – Water Quality & Aquatic Ecology) Monique Harvey (MH – Hydrologist /Data Analyst)
Notes taken by:	Lisa McGlinchey (supplemented by other staff)
Definitions and Abbreviations	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 MALF = Mean Annual Low Flow TWS = Te Waikoropupu Springs l/s = litres per second

Note: records of discussion points have been grouped into similar topics and are not necessarily in the order discussed at the meeting. Notes in square brackets [] have been added post meeting for clarity.

FLAG MEMBERS PLEASE NOTE: If you have any questions or need anything between meetings, then please contact Mary-Anne Baker by email: marya@tasman.govt.nz or by phone ddi 03 543 8486.

Purpose of Meeting

- To understand how the water-bodies in the Takaka catchment interconnect and contribute to Te Waikoropupu Springs flows
- To complete the minimum flow and allocation limit setting for the Takaka water bodies connected to and influencing Te Waikoropupu Springs flows
- To consider options for managing water allocation from the Upper Takaka River in relation to existing users and the pattern of Cobb Dam flow releases.

Welcome and Karakia

RSN welcomed the group. GA led the group in a Hawaiian Karakia.

*Ola i ka ha
Ola i ka wai
Ola i ka 'io*

*Life/healing is in the breath,
in the water,
in the great spirit.*

MLa gave the health and safety briefing for Fonterra.

Check-in

PM: TDC sprays the Takaka Rivers with herbicides – what implication does this have for water quality?

MAB: This will be something that will need to be looked at in future meetings. However, this is managed through the usual consenting process.

MB: There are meetings at Takaka at the beginning of December for the consent that has been applied for.

AY: I have put in a submission on the consent regarding the impact on invertebrates and the potential impacts on the aquifers.

[Post Meeting Information: The consent has been applied for and has gone out for submissions. A total of 81 submissions were received. A hearing date is set for Monday 30 November to Friday 4 December 2015 with days in both Richmond and Takaka. For more information see [council's website](#) (click link or search for 'herbicide' on the home page).]

Session 1: Updates

Irrigation Meetings

A workshop with irrigators and Irrigation NZ and representatives from both the Takaka and Waimea FLAGs will be held on the 26th November – probably held in Motueka (location to be confirmed). The workshop will look at how the FLAGs might code efficiency for irrigation into the TRMP.

Another meeting will be held on the evening of the 26th November (location to be confirmed) looking at security of supply with the Takaka irrigators and FLAG representatives. GB, TR, MB, MS and MLa to attend on behalf of FLAG.

Action: MAB to resend invites to irrigators workshop and evening meeting to FLAG confirming venues.

Public Summary Information and Planning for Public Open Day

- Public summary drafted by MAB to be worked over by RSN and KJ for the consultation sub-group.
- November is probably too early for an open day. Planning for early 2016 instead.
- Public summary document can go out sooner with date for open day included.

Group discussion on timing/scope of open day:

- We're expecting an El Nino to hit us in February – the topic will be forefront in peoples' minds.
- Council also has other consultations early in 2016 that we don't want to clash with.
- We're wanting community to read information and come along for a chat – rather than giving people definitive outcomes from the FLAG process.
- January is too busy for tourist industries etc.
- March is quieter.
- After school restarts is good.

RSN: It would be better to pick a time when more people will be available – the FLAG will also be further progressed on some of the work by Feb/March.

KJ: Perhaps we should do a number of consultation documents of shorter content.

Group agreed to aim for Feb-March with getting summary document(s) out prior to this.

MS: How well can we achieve community engagement – past experience hasn't achieved great levels of engagement.

SM: The FLAG will need to consider how best they think they could contact and engage the community.

RSN: There are lots of things we can do – we could send every ratepayer a postcard about the open day.

MB: We could use social media (eg community noticeboard) and other aspects such as email, etc

GA: providing anonymous opportunities are good as well as face-to-face. Golden Bay weekly is a good option.

MB: Golden Bay weekly have offered assistance to the Community Board.

MAB: Should we leave it with RSN and KJ to look at options for getting articles together for Golden Bay weekly and other options then?

Action: RSN to discuss with KJ, MLa and MB On determining a suitable date for the open day and output of summary documents/articles prior to the open day.

Consultation with Iwi

MAB: We will need to consult with the wider iwi before we talk to the public. There is the option of having a hui.

RSN: MLI has indicated that on some issues she will need to take these back to the wider iwi in line with their internal protocols to confirm their position on the issues.

SM: There are similarities for the FLAG process with the landscape group in their work with the wider community and iwi processes. They went through these two processes at the same time.

Report to TDC Environment and Planning Committee

MAB: Staff will be taking an update to Council on the Progressive Implementation Plan for the NPS-FM. There may be discussion in council on whether a FLAG approach is used in other catchments in Tasman. If this approach is followed, it could be useful for the existing FLAG members provide mentoring to new FLAG groups.

RSN: We are learning a lot as we go through this process that could be of benefit to other similar processes both in Tasman and nationally.

RSN: We will also be looking to take the recommendations regarding use of RMA Sec 329 directions to the EPC.

MAB: It would be good for one of the FLAG to present the update to the EPC...

Mik S indicated he was happy to do this.

Action: MS to attend the EPC on the 19th Nov and give a FLAG update. Update to cover general progress and specifically the recommendations for the Dry Weather Task Force on Sec 329 directions.

[refer further discussion of this issue in Session 4]

Session 2 – Upper Takaka Allocation Regime

Management Regimes - group discussion led by Mary-Anne Baker & Joseph Thomas

MAB: We would like the FLAG to decide on one Upper Takaka scenario to progress with (ie either 70-20 or 70-15 regime) as the modelling and data sensitivity is not enough to identify a significant difference between the two different scenarios so is not the best use of time to do both. However, we are also keen to look at an A and B water permit option as an alternative regime.

RSN: Tony R has indicated that the irrigators would prefer a lower allocation to achieve a workable security of supply – they were not happy with the security of supply under the 70-20 scenario.

GA: Are the irrigators not happy with 92% security?

JT: Looking at just the percentages can be misleading – our rivers are very different to other areas nationally – the rivers respond very quickly to rainfall and the Cobb provides an artificially high level of security. We also can't just look at the number of days of cease take – they are in and out of cease take very quickly.

MS: There won't be more water flow through the rivers unless there is an agreement with Trustpower over the Cobb releases. If we have protections for the rivers there will be impacts on security of supply. We are discussing the cheapest water available, not the availability of water.

AY: Mary-Anne has indicated that the council would be interested in the region wide economic benefits, rather than benefits just to specific users...

MAB: There is a potential conflict for the regional economy to providing water to meet the amount that individuals want. We have metrics that we can look at around this. We need to look at being able to move water between users during drought. We need to discuss this with the irrigators over whether they would prefer a formal transfer system or a more shared system undertaken by the irrigators [such as done in the Riuwaka].

AY: I agree – this is something that the irrigators need to discuss.

[Topic parked for later discussion in the day during the security of supply session.]

RSN: Does anyone have a preference for 70-20 over the 70-15 regime?

MS: I'd prefer we looked at the 70-20 as it has a higher cease take.

MAB: There is an almost infinite permutation of numbers we could look at, but we need to pick one to look at things further.

RSN: It is a peg in the sand to work from. NM has said at the last meeting he was in favour of the 70-15 approach.

JT: It doesn't matter from an ecological perspective - you are still working to the same minimum flow as this is determined by the 70% part of the regimes.

RY: The higher the allocation the more often they will be reaching the minimum flow and the more often users will be cut off.

AY: Is it possible to tell us the difference between how long there is [at minimum flow] between the two scenarios?

JT: There is no standard curve for the Upper Takaka River as the Cobb releases masks the natural flow.

MLa: Looking at the number of cease take days the 70-20 regime doesn't seem like good security...

JT: The Cobb releases control the number of days in the Upper Takaka River so we shouldn't get too hung up on the total cease take days.

RSN: What are the implications of one regime over another?

MAB: The security of supply changes and the irrigators are indicating that the 70-15 would be preferable to the 70-20 regime.

MB: I would have thought anything better than 90% would be nationally considered a good security of supply.

JT: The percentage of the waiting list met [shown in the summary spreadsheet] is a bit misleading as not all of those on the waiting list can easily access water.

MLa: If this is the case, then we should look at the 70-15 regime as the waiting list numbers don't matter as much.

AY: Is it plausible that people will start extracting from the Arthur Marble Aquifer? In the lower areas where the Takaka River is dry – how far below the ground is the water?

MAB/JT: [Whether they extract from the AMA will] depend on the cost.

JT: The marble is at about 60m [below ground level], but it is overlain by gravels and the water level ranges from 8m to 36m [below ground level].

MAB: It is physically possible. If the opportunity is provided and users believe it is affordable they will do it.

AY: If we leave a little more in the river at Upper Takaka – potentially this could be sucked out of the ground lower down in the catchment and at greater cost?

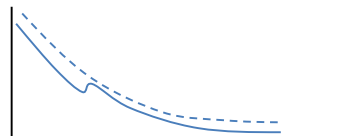
AY: I think the quality of water going back into the ground is more important [than the volume allocated].

MB: I'm interested in Mik's thoughts after hearing this discussion...

MS: I'm interested in a higher cease take and leaving more water in the river and I think the security is still within suitable levels.

Andrew Y drew a diagram on the whiteboard highlighting the impact of the Cobb on the Upper Takaka.

AY: The river recession is not a normal curve like this:



AY: But affected by the Cobb releases like this:



AY: I think the higher cease take will make little difference on the levels in the river downstream.

SM: *The higher cease take is not a higher level of protection.*

JT: *You are assuming that the pumping is taking everything – but they are not. There will be more water in the river under the 70-20 regime.*

RSN called for a round table for FLAG members to identify their individual preferences:

FLAG member preferences:

- AY: *It doesn't matter which regime is chosen*
- MB: *I'm unsure – I'm happy to go with Mik's approach of 70-20*
- HR: *70-20 due to slightly higher level of water left in river*
- MLa: *70-15 due to slightly higher security of supply*
- GA: *as long as we come back to looking at water quality - I don't mind either option*
- PM: *70-15- as the irrigators would prefer this, but I'm happy with either,*
- GB: *70-15 as I prefer the security of supply – although I'm not clear on the security of supply days*
- KJ: *70-15 as I prefer the security of supply, and we need to come back to water quality anyway*
- MS: *70-20 due to the higher cease take and therefore higher level of water left in the river*

What is Rogers take on this?

RY: *I think 70-15 is more conservative – the 70-20 will increase the time that the river is at minimum flow so there is a slight risk there. However, I take Joseph's point that the higher cease take with the 70-20 will leave more water in the river, particularly if the full allocations are not used.*

MB: *But we should be assuming it will all be used.*

RSN: So the 70-15 does have some ecological benefits as the river won't be at minimum flows for as long as under the 70-20 regime.

RY: *Yes.*

Group agreed to run with the 70-15 approach for the water quality work.

Upper Takaka – Security of Supply

MAB went through a draft excel spreadsheet showing the numbers for an A and B type¹ water permit regime for the Upper Takaka.

Use of this type of approach will depend on what the irrigators can support.

GA: Will this depend on geography and where users are in the catchment? Could they be existing users, but end up in a 'B' class permit situation [because of upstream takes]?

JT: *No. [Because the 'B' permits are all ceased at a flow above the A permits, the A permits continue to function as they do currently during times of low flow].*

¹ Class A permits are those with the highest security of supply, Class B permits may have a lower security of supply being rationed or cut off before Class A permits; Class C permits only allow for takes when flows are above median flows and these are generally takes to storage.

JT drew a summary table on the white board explaining the A and B permit effects for the Upper Takaka and Te Waikoropupu Springs regimes:

Upper Takaka Total Allocation		Unconfined AMA takes	Confined AMA takes	Waingaro contribution to TWS (~8%)	TWS Total Allocation [90:10 regime]
476* 357 l/s		142 l/s	6.7 l/s	- 50 44 l/s	766 l/s (less Waingaro = 716 722l/s)
'A' Permit Allocation (existing takes)	'B' Permit Allocation (new takes)	Remaining allocation available from AMA:		None	
240 l/s	236 117l/s	716 722- (476357 +142+6.7)=			
Cease take at 1657 l/s [60:10 regime]	Cease take at 2442 2023 l/s [70:15 regime]	91.3 216 l/s			

*[*Post meeting clarification - the crossed out Upper Takaka numbers were given at the meeting – but these are for the 70:20 regime and the FLAG have chosen to progress with the 70-15 regime. The Waingaro number has been amended to 8% of the allocation (550l/s) for the selected regime.]*

JT: The existing consents will retain their current cease take of 1657 l/s and any new permits will be a 'B' permit at a higher cease take [2023 l/s– under the 70:15 regime].

PM: It is not just about the level of allocation, but also where it is allocated. Sowman can't access all of his allocation now and is asking for more. If we allocate more water upstream of him he will have access to even less water.

JT: The A and B scenario won't affect the Takaka drying zone as the B takes are operating above the A's and are cut off sooner than the A permits. [The drying zone extent will remain as it is currently].

PM: I like the A and B water take option - someone could come in with a more effective use of water than dairying and the B permit would allow this to occur.

RSN: Will PM's and GA's concerns be addressed later in the session?

JT: Yes.

LM: Am I right in thinking that the A-B scenario – from a low flow and drying reach extent – is effectively choosing the status quo for Upper Takaka?

JT: Yes.

JT: We already have a proposal for an A-B approach in the Upper Takaka from one of the existing users.

AY: [Regarding the table Joseph drew] Where does the 236l/s allocation under the B permit come from?

LM: The B permit allocation results from the total allocation under the regime (for the 70:20 regime this is 476 l/s) minus the allocation for A permits – which is the existing takes of 240 l/s giving the remaining water available under the regime for allocation to new takes under the lower security B permits (236 l/s).

AY: So it seems we are allocating on a whole based on the 70-20 approach, but there is a step change with the existing irrigators... Is this a better situation for the irrigators? – How many of the existing irrigators are also the future irrigators [on the waiting list]?

[It means the existing irrigators maintain their status quo and could also potentially get additional water through the B permit system – if there was available water. All three of the existing consent holders also have waiting list applications.]

Group decision: FLAG agreed to look at an A and B scenario and talk to irrigators about this as an option.

Action: FLAG representatives to discuss A/B scenario with irrigators and include this in further considerations for Upper Takaka.

RY: The minimum flow will actually be lower in the A permit than in the 70-15% scenario [shown on the summary table] – it will be approximately a 59% scenario [ie 59%:10%]. The minimum flow will be the cease take (1657 l/s) less the allocation limit (240 l/s). The status quo protects to 1417 l/s not to 1657 l/s.

MAB: So if we want to protect the river under the 70:15 regime - the cease take of 1657 l/s needs to go up a bit.

Action: JT/LM to revise the A-B table, correct the status quo minimum flow etc and send out to FLAG prior to the irrigators workshop. FLAG to provide feedback.

MAB: Roger, what are your thoughts on a protection level provided at 59%?

RY: It is higher than moderate. [Post meeting clarification -based on the colour classes given in the zone summaries– this makes the status quo a moderate to high level of risk to aquatic habitat – previously the status quo was listed as a moderate risk].

RY: The regular fluctuations from the Cobb in the Takaka River is probably affecting the available habitat, particularly for those species unable to move. These will only be present in areas that are wetted all the time.

GB: So as the dam has been there a long time we will have an aquatic community that reflects this...

AY: Are the fluctuations from the Cobb so much larger than the takes?

JT/RY: Yes - the Cobb fluctuations are regularly up to 6000 l/s [when the takes are only 240 l/s]

MAB: Is it appropriate then to compare the 70% and the 59% regimes as it such a different river [compared to the other catchment rivers] due to the influence of the Cobb.

JT: No, it is not.

GA: There are also concerns for impacts of the regimes on extension of the Takaka River drying reach [in addition to the effects on aquatic habitat in the flowing river reaches].

JT: The A-B permit system probably wouldn't work in another Takaka catchment river as this area benefits from the Cobb influence.

Session 3 – Te Waikoropupu Springs & the AMA Recharge Zone

Presentation: AMA and Te Waikoropupu Springs Recap (Joseph Thomas)

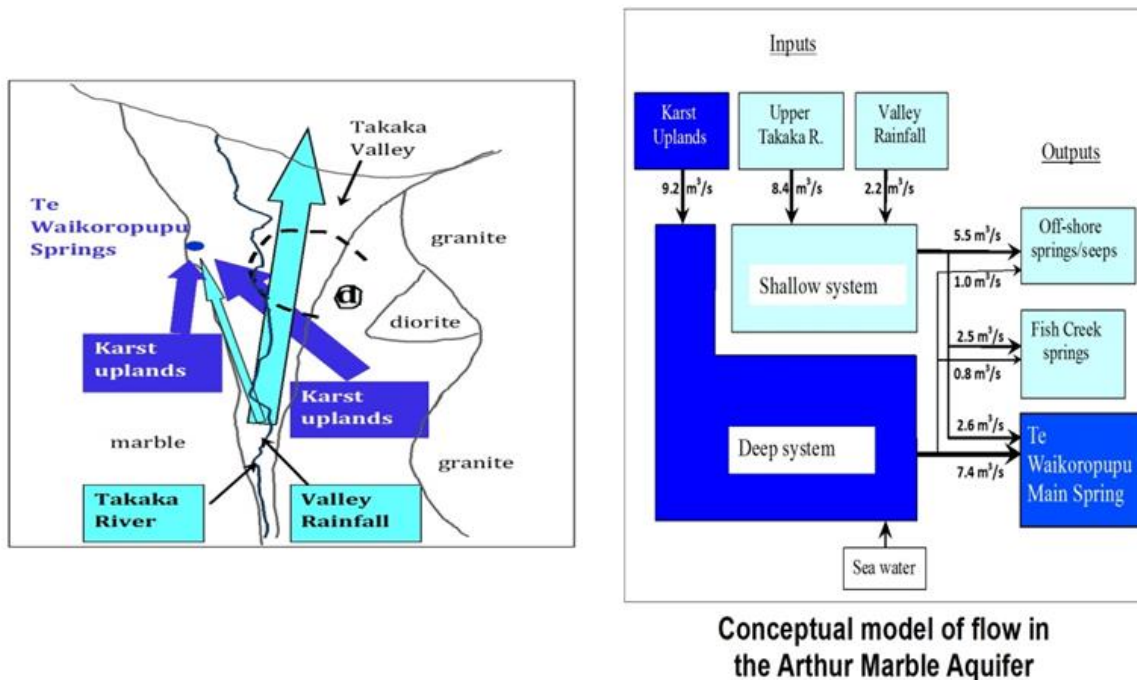
Joseph provided the FLAG with a recap of the Arthur Marble Aquifer and Te Waikoropupu Springs geology and connections.

Key points:

- There are three catchment sources that provide flow to Te Waikoropupu Springs:
 - Upland karst
 - Upper Takaka River
 - Lowland valley rainfall
- The recharge area is defined from the river catchments that flow through these areas.
- The AMA is unconfined in the upper catchment and confined in the lower catchment.
- There is one existing consented water take in the confined AMA.

- The flow models show most of the Te Waikoropupu Springs flow comes from the upland karst and the Takaka River – however the numbers are based on mean flows not on low flows. We cannot guarantee the ratios will be the same at low flows.
- Fish creek springs is dry [on average] once in every 5 years.

[Slide 7 from Joseph's presentation showing the flow models is reproduced below]



Are mean flows a more important factor when we are calculating nutrient concentrations?

JT: In mass balances we will need to look at all flows, not just low flows.

AY: Regarding the flow model [refer diagram above] – you have part of the shallow system going out to sea (5.5 m³/s), but the deeper system is only going out at 1m³/s? So the deeper system is blocked from going to the sea?

JT: The shallow water is slip streaming out to the coast as the deeper water prevents the shallower water from going downwards.

AY: The deeper water has more variation in flow than the shallower water. I visualise the deeper aquifer as a tank with one outlet at the springs, and the shallower aquifer is more like a sponge and is important for keeping springs flow going during dry periods...

JT: The proportion of shallower water increases in the Te Waikoropupu Springs at low flows.

MAB: Can we create a new diagram for low flows?

JT: We don't have the isotope data for this.

AY: But this could be determined from salt concentrations.

MLa: Are we assuming all parts of the aquifers are the same?

JT: We have both quantity mixing and quality mixing occurring within the aquifers. The assumption [in the Landcare modelling] is that the water is evenly mixed, [but it is not].

MLa: If the nitrate input is constant then at periods of high flow the nitrate concentrations [in Te Waikoropupu Springs] would be less than during low flows as

we are changing the proportion of the source water [from the deep to the shallow aquifer]?

JT: Yes.

SM: How much would isotope modelling cost and how long would it take?

JT: Years and we would need to convince GNS to do the isotope monitoring as they are the only ones who do this.

[Issue of water quality parked for later discussion]

AY: Regarding the Waingaro River contribution - what is it 8% of?

JT: It is 8% of the flow below the Mean Flow that goes into the Arthur Marble Aquifer. It does not all come out at the Te Waikoropupu Springs. Some may go out to sea.

RSN: and we don't know what percent comes out at the Te Waikoropupu Springs?

JT: No, also the 8 % can also change depending on the conditions in the aquifer.

JT: In dealing with the Waingaro contribution to the springs we are looking to exclude the whole 8% from the Te Waikoropupu Springs allocation to allow for this.

[Clarification note: the assumption in the summary spreadsheet calculation for Te Waikoropupu Springs is that 8% of the allocated amount would be from water that would have flowed to Te Waikoropupu Springs – this is a conservative approach.]

[Issue parked for later discussion]

Presentation: Te Waikoropupu Springs – Flow Management (Dr Roger Young & Joseph Thomas)

Roger Young gave the FLAG a presentation on the ecological flow requirements for Te Waikoropupu Springs.

JT showed the group the Waikoropupu River Zone which included the Te Waikoropupu Springs statistics *[refer slide 3 of Roger and Joseph's presentation]*.

MAB: The FLAG need to make the distinction between the Waikoropupu River catchment zone and the regime for Te Waikoropupu Springs which looks at the other catchments (Upper Takaka, Mid Takaka and Waingaro) that affect the springs.

JT: We will also need to set a number /regime for the Waikoropupu River catchment – but this will be done on another day.

SM: What is the 6.7l/s AMA consent for?

JT: Proposed water bottling – the consent is effective, but has not been used yet.

RY: So the 7day statistics at the lower site on the map [the 'Waikoropupu at U-S Takaka confluence' site] are a combination of the main spring statistics, the fish creek spring statistics and the remainder of the Waikoropupu River catchment?

JT: Yes

Key points from presentation:

- There is not a linear relationship between the main springs and Fish Creek springs as the Fish Creek springs are higher [in elevation] than the main spring and dry up on average every 5 years.
- Te Waikoropupu main spring has moderate to high ecological values – but as discussed last week this may not be the driving value, as there are very high cultural/spiritual values.
- *[Minimum flow and allocation limits for the]* local surface takes in the Waikoropupu River zone should be based on Bell Creek [*Campbell Creek*] flows. It would probably

be appropriate to use a similar approach as that used for the western coastal catchments [eg: 90:10 regime in Pariwhakaoho].

- We get a long recession curve as it is a spring fed system – so there is sufficient time to put in a rationing step into the regime.

JT: So the ecological value of other rivers in Takaka are higher than the springs?

RY: Yes, there is certainly less diversity in the springs.

Key features for Te Waikoropupu Springs:

- Moderate-high ecological values
- Very high cultural values
- Fed by marble aquifer
- 64 l/s consumptive takes
- Minimum flow: 90-100% of 7-day MALF
- Allocation limit: 10-20 of 7-day MALF
- There are takes from surface water in the same catchment
- 6895l/s 90% of MALF at main spring
- 766l/s 10% of MALF at main spring
- Rationing step (50%) = 7661 l/s
- Cease take = 7278 l/s

[Note: the flows for Te Waikoropupu Springs are measured at the groundwater bore adjacent to the main spring (GW6013) – the water level in this bore has been correlated to flow in the main spring.]

Roger Young suggests the following options:

- Minimum flow = 90-100% of 7-day MALF – based on flows at bore GW6013
- Allocation limit = 10-20% of 7-day MALF – based on flows at bore GW6013
- Minimum flow should be a cease take

Considering habitat requirements, allocation needs and security of supply, staff suggest the following approach for further consideration of implications:

- 90% 7-day MALF minimum flow (6895 l/s) and 10% 7-day MALF Allocation (766 l/s) - at the main spring [a 90:10 regime]
- A 90:10 regime would mean 4 days on average per year when the flow would fall below the minimum flow
- This regime gives a rationing trigger (50% cut) at 7661 l/s, which gives a security of supply where we would expect an average of 13 days per year when flow would drop below this trigger (ie when water users would be restricted by 50%)
- This regime gives a cease take trigger at 7278 l/s. which gives a security of supply where we would expect an average of 7 days per year when flow would drop below this trigger (ie when water users would have no water)

Summary of Staff Suggested Regime for Te Waikoropupu Springs:

Regime Statistic	Approach for calculation	Actual number	Location where flow would be measured
Minimum flow (MF)	90% of 7-day MALF	6895 l/s	GW6013
Allocation limit (AL)	10% of 7-day MALF	766 l/s	GW6013
Rationing step (50% cut)	MF+AL	7661 l/s	GW6013
Cease take	MF+ 50% of AL	7278 l/s	GW6013

- *Expected take 50% restrictions = on average 13 days per year*
- *Expected cease take = on average 7 days per year*

MAB: We are not talking about taking water out of the springs, but rather the water being taken from the recharge catchments. Is the suggested level of protection appropriate for the springs?

AY: Are we just talking about ecological values here?

RY: My numbers are just focusing on the ecological values. If the FLAG think the cultural values are not protected by this, you may want to think of a higher level being required.

MAB: If you were standing at the main springs would you notice a difference of 700 l/s taken from the springs?

RY: No.

PM: In fact you'd notice a whole lot more water coming out due to the catchments originally being forested and from the impact of the Cobb releases increasing the spring flows [over the natural flow levels].

MAB: We need to take more photos to show people that there is no visually observable difference in the volumes we are talking about.

JT: Yes, Fish Creek is a better indicator of the effects on flows. With a cease take trigger it is possible that Fish Creek will get better.

JT: The only things we can manage are the water takes from the contributing catchments. We need to back-calculate the allocations in these catchments and look at how these relate to the allocation regime selected for the Te Waikoropupu Springs.

MAB: We need to decide if the suggested 766 l/s allocation for Te Waikoropupu Springs is appropriate – if it is, then we look at how the contributing catchment numbers stack up against this.

Does the salmon farm have a [cease take] trigger?

JT: It is not a consumptive take, but they do have limits based on the visual impacts on the river.

GB: How many years back do you go to get the MALF figures? Does it include the time before there were takes?

JT: It goes back to 1999 – it takes into account the current abstractions that affect the springs. We have correlated the gauged flow of the springs to the water level in the groundwater bore [GW6013 - just above the springs].

GB: So before the existing takes there would have been more flow in the springs?

JT: For the current takes there are no restrictions on any take except the Upper Takaka three consented takes. The proposed regimes the FLAG are discussing will improve the situation by introducing cease takes to all consents. The lowest they have seen the spring is the 1971-72 drought.

RSN: Is everyone happy with the 90% of MALF amount for the minimum flow in the springs?

AY: Margie is not here and I am feeling this absence. There is a very strong cultural attitude to allowing the springs to flow strongly, always.

AY: Roger you had a limit of 10% of MALF for allocation (766l/s). If we add up the currently allocated amount this comes up to 668 [using the Upper Takaka 70:20 regime] – this adds up to more than we have allocated to contributing catchments currently (500l/s) – so we already have a more stringent number on the contributing catchments?

RY: Yes.

AY: Where would the extra allocation come from - the Arthur Marble Aquifer?

MAB/JT: Yes – staff are recommending any further water – if provided for - be taken from the AMA. The question is do we want to create this economic opportunity...

RSN: So the question is: “Does 90% of MALF compromise the ability of the springs to flow freely and strongly from source to sea?” The group can make a decision with a proviso that you can ask Margie/Iwi to respond to this question.

AY: We don't fully understand the time lag for parts other than the upper catchment and the effect in the springs? And how transmissive is the aquifer to water flow through it? Just because it is fast in the upper catchment doesn't mean it is fast everywhere...

JT: We see the effects on flow relatively quickly as it is a pressure based system.

RY: If you have 766 l/s allocated in the upper catchment – we won't see this effect all at the springs as it is dampened by the [large volume of the] aquifer.

GA: There is unease - in asking people what they think about reducing low flows – even with the expert advice that we can go lower with no adverse effects expected.

<JT had to leave meeting for an hour>

LM went over Te Waikoropupu Springs spreadsheet and identified that there had been some conservative assumptions made in the proportions of the effects of the upper catchment flows on Te Waikoropupu Springs.

LM: Modelling suggests that 45% of mean flows from the Upper Takaka River go to the AMA – only some of which will go to Te Waikoropupu Springs - the allocation summary for Te Waikoropupu Springs assumes 100% of the allocation affects the Springs and this is a conservative approach.

AY: My concern is the total amount of allocation - as we are suggesting this is going from 500 l/s up to 766 l/s. Given the buffering – I don't think the cease take will make a difference...

MLa: But would we even see this difference [visually] at the springs.

PM: We've had this level of use [500l/s] in the upper catchment and we haven't seen any significant impact on the springs. So I am happy to push this up to 766 l/s.

RSN: At 90% of MALF we would have ecological protection. If you want to take it higher than 90% for other reasons – this could be looked at...

<lunch>

Discussion: Te Waikoropupu Springs – implications and effects of decisions to date. (Mary-Anne)

MAB went over the implications of the decisions being made by the FLAG and who they will affect.

- The flow regimes for the Waingaro and Upper Takaka zones protect the respective river low flows in these catchments.
- The different catchments all contribute slightly differently to the springs
- There is not a one-to-one relationship between water taken in the Upper Takaka Zone and reduction in flow at Te Waikoropupu Springs.
- Not all of the water in the Upper Takaka Zone goes to the Te Waikoropupu Springs. The allocated part is only a part of the Upper Takaka water – so only a part of the allocated water will affect Te Waikoropupu Springs.

- When we add up the regime allocations – there is a remaining potential allocation [97 l/s if using the Upper Takaka 70:20 regime or 216l/s if using the 70:15 regime] that could be spread across the catchments.
- 668 l/s is what is allocated so far in the Waingaro and Upper Takaka [using the 70:20 regime] Zones, and including the existing takes in the Middle Takaka and the existing Upper Takaka takes that are not already included in the Upper Takaka Zone.
- JT: It would be good to cut up the remaining allocation available in the Te Waikoropupu Springs regime into the confined and the unconfined portions of the AMA, or possibly in the Middle Takaka from the gravel aquifer. For the confined aquifer this would avoid the issue of future consent applications falling into a non-complying situation.
- Although we may not see the impact visually at the springs for the different regimes, the selected regime still needs to meet the FLAG objectives.
- JT: Staff are recommending that the remaining allocation only come from the AMA and leave the tributaries alone as these dry up.

GA: Does that approach [of only allowing further water takes from specific water resources] hold up to challenge?

JT: Yes, we have already turned away a take for Craigieburn Creek due to the impact on the drying of the river.

GB: But ‘C’ take permits (to storage) is still an option in these areas.

JT: Yes.

MB: For someone who puts in for a consent now- before the FLAG are done- what happens?

MAB: If you set up an allocation number that is lower than the existing consents, plus their number, you end up in an over allocated situation and there are strategies to ‘claw-back’ to the desired number.

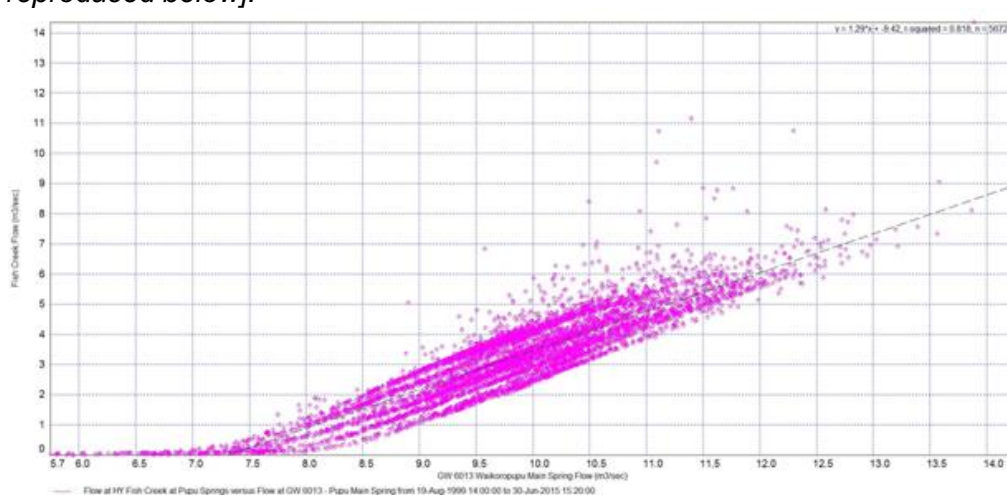
AY: What kind of approaches are there?

MAB:

- *Bone fide review*
- *Cuts required for everyone (a haircut for everyone)*
- *Consideration of storage to meet needs*

RSN: In terms of moving forward – the FLAG need to discuss their feelings about where the Te Waikoropupu Springs allocation should be...

AY: Referring to the main spring and fish creek spring relative flow graph: [slide 4 reproduced below].



AY: The Fish Creek springs dries up remarkably earlier in the season given they are only 3m above the main springs. Roger, what are your thoughts on the impacts on the ecological values in the fish springs?

RY: For the Fish Creek springs it would be good to look at the flow statistics. It currently dries up relatively frequently so the loss to ecosystem values in the spring will be naturally affected by the drying. I don't think the decisions the FLAG are making will significantly influence the drying up of the Fish Creek springs.

AY: but the range we are considering in terms of minimum flow is where the Fish Creek spring dries or not...

SM: Does this mean the Fish Creek springs are a canary for the Te Waikoropu Springs?

MAB: No, it means in protecting the Te Waikoropu Springs we can also protect the Fish Creek Springs.

PM: How can the Main Spring affect the Fish Creek springs?

AY: Because if we allocate based on the Main Spring we reduce the levels and so the Fish Creek springs will dry up sooner.

JT: What we see now in Fish Creek is hopefully not what we will see in the future as there will be cease take triggers on all the existing water takes.

GB: The drying of the Fish Creek springs occurs naturally.

JT: If the Cobb wasn't there putting water into the marble then Fish Creek springs would dry up much more often.

RSN so in summary:

With intervention (cease take triggers) things will be better for the Fish Creek springs.

MAB: Can we get information on the frequency of drying of the Fish Creek spring comparing the allocation proposed with the status quo?

JT: Yes, we could –but it would be reasonably gross.

Action: JT to identify frequency of drying of Fish Creek Spring comparing the proposed allocation regime with the status quo.

PM: I don't think we have enough information to make a decision. I think the Fish Creek spring and the Main Spring have different catchments, and I don't think anyone has shown that they are the same catchment...

AY: The shallow aquifer is the one fed by the rivers and valley rainfall – this supplies both of the springs - for Fish Creek springs $\frac{3}{4}$ of the flow comes from the shallow part of the aquifer and $\frac{1}{4}$ from the deep part. And for the Main Spring $\frac{1}{4}$ of the flow comes from the shallow part of the aquifer and $\frac{3}{4}$ from the deep. Therefore, our allocation amounts will affect the shallow aquifer and will firstly affect the Fish Creek springs and then the Main Spring.

JT: This is presumptuous because the lower part of the graph [refer slide 37 reproduced earlier] may need to be redrawn with the proposed interventions (ie cease takes).

AY: I'm suggesting that the [relationship will remain the same] as the security of supply we are talking about is so good that the cease takes will only occur on an infrequent basis.

JT: What are you suggesting for allocation [in Te Waikoropupu Springs regime] Andrew?

AY: We should look at a cease take at 6687l/s.

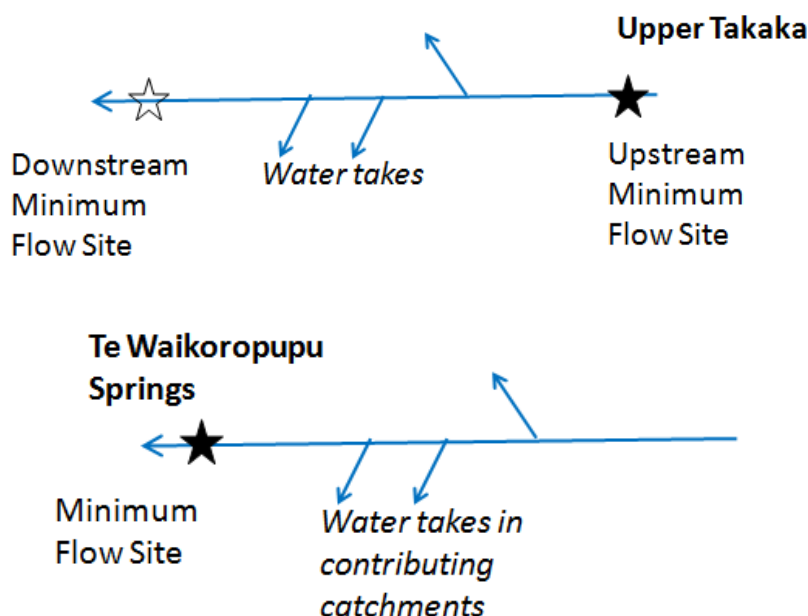
MAB: Do the numbers in the graph [slide 37] still hold as the cease take [for the suggested regime is higher than this at] 7278 l/s...

JT: The cease take doesn't apply to the Waingaro or the Upper Takaka consents – the Te Waikoropupu Springs cease take will apply to all the other consents [in the recharge zone – ie Middle Takaka and those existing takes not already included in the Upper Takaka regime].

GA: If the public start seeing Fish Creek starting to dry up more often, then we need to be able to say why...

GB: They won't see it drying up more [as we will have cease takes on all consents].

RY drew a schematic of the Upper Takaka regime and flow locations.



- Even though we are looking at the bottom of the Te Waikoropupu Springs 'catchment' – it includes the natural system, plus the allocation already occurring in the contributing catchments.
- In any case, the cease take trigger should equal the minimum flow, plus the allocation amount.

- In the Upper Takaka Zone we measure minimum flow at the upstream site so we need to add the allocation limit [the water takes] to the minimum flow value to get the cease take trigger level
- In Te Waikoropupu Springs the measurement of flow at the springs already takes into account both the minimum flow and the allocation amount [*ie the contributing catchment water takes*].

AY: So are you saying that the Fish Creek springs has coped with this system for millennia so therefore it can cope with the proposed regime?

RY: Yes.

JT: The flow recorder is in the Fish Creek river, not in the springs – the springs dry up not the creek itself – when the springs dry up – there is still flow from the upper catchment.

GB: The Fish Creek springs are a bit like a release valve to the main spring.

Action: RY/JT to relook at the relationship between Fish Creek springs drying up, the flows to the main springs and the drying of Fish Creek itself.

RSN: Are the ecological values in the Fish Creek springs different from the main spring?

RY: Yes

RSN: Perhaps we need to define what the ecological value is of the Fish Creek springs...

JT: I 'm more comfortable with the proposed regime as we have intervention (cease take triggers).

RSN: We will also have better monitoring to look at the effects.

RSN: Is the visible effect of the drying of Fish Creek more important than the ecological values of the Fish Creek springs?

MB: No.

JT: It would be impossible for someone visiting the springs to visually determine things were worse or better – they would need to look at the data.

Te Waikoropupu Springs Regime Summary:

	Proposed TWS regime (90%:10%)	Current and proposed allocation in contributing catchments*			Current situation
Allocation Limit	766 l/s	668 [549] l/s			500 l/s
	Allows for existing and proposed takes plus a further 97 [216] l/s from the AMA	Includes:			All existing takes in the Upper Takaka, Middle Takaka and Waingaro catchments [total of 493 l/s].
		476 [357]	Upper Takaka Zone	(70:20 [70:15] regime)	
		44 (8% of 550)	Waingaro Zone	80:20 regime	
		142	Unconfined AMA	existing takes	
		6.7	Confined AMA	existing take	
Cease take trigger	TWS Rationing at 7661 TWS Cease Take at 7278	Upper Takaka CeaseTake at 2142 [2023] Waingaro Rationing at 3418 Waingaro Cease Take at @3143 Others: TWS Rationing and Cease take triggers			none

[*note the struck out numbers have been modified post meeting to reflect the decision by the FLAG at the meeting to utilise the 70:15 regime in Upper Takaka zone, rather than the 70:20 regime.]

RSN: Any comments Kirsty – before you have to leave?

KJ: I'm happy to go with the 766 l/s allocation (the 90%:10% regime) as this allows for some further allocation from the AMA.

<KJ left meeting>

GROUP decision:

Action: For Te Waikoropupu Springs regime staff are to use the 90%:10% regime [766l/s allocation] for consideration of the potential implications for water quality with a rationing (50%) cut at 7661 l/s and cease take trigger at 7278 l/s.

RSN: Has anyone got any comments - anyone confused?

MB: I'm clear with where we have got to.

MS: I'm clear from a technical point of view, but I'm still not clear on the cultural/spiritual aspect to this – how much is natural variation and how much is due to the allocation. I'm happy to go with the 90%-10% regime as a starting point to look at the numbers.

AY: I have parked my emotional response to this as I think we can get some useful information out of the numbers. Once we have a good handle on the numbers we can then ask ourselves the emotional questions regarding other values.

Session 4 – Application of S329 restrictions to Waingaro River

Mary-Anne gave the FLAG a brief overview of the water shortage directions able to be made by Council under Section 329 of the Resource Management Act.

Key points:

- Sec329 enables council to direct who gets water and what it is used for when there is a water shortage
- It is used by council already in the Waimea Plains
- Used where there is an absence of provisions for rationing and cease take.

- We need the FLAG to consider what flow level should be recommended to council as information to be used in determining sec329 directions in the coming season.
- We could start with the current proposed limits agreed by FLAG to date. But not all of the water allocations proposed are being used currently.

*[Section 329 of the RMA states:
329 Water shortage direction*

- 1) *Where a regional council considers that at any time there is a serious temporary shortage of water in its region or any part of its region, the regional council may issue a direction for either or both of the following:*
 - a) *That the taking, use, damming, or diversion of water:*
 - b) *That the discharge of any contaminant into water,—*
is to be apportioned, restricted, or suspended to the extent and in the manner set out in the direction.
- 2) *A direction may relate to any specified water, to water in any specified area, or to water in any specified water body.*
- 3) *A direction may not last for more than 14 days but may be amended, revoked, or renewed by the regional council by a subsequent direction.*
- 4) *A direction comes into force on its issue and continues in force until it expires or is revoked.*
- 5) *A direction may be issued by any means the regional council thinks appropriate, but notice of the particulars of the direction shall be given to all persons required to apportion, restrict, or suspend—*
 - a) *The taking, use, damming, or diversion of water; or*
 - b) *The discharge of any contaminant into water,—*
as far as they can be ascertained, as soon as practicable after its issue.
- 6) *For the purpose of this section, notice may be given to a person by serving it on the person or by publishing the notice in one or more daily newspapers circulating in the area where the person takes, uses, dams, or diverts the water, or discharges a contaminant into water.]*

MAB: JT do you have a feel for an appropriate number [for use in the Waingaro catchment]?

JT: It is easiest to give the number the FLAG are provisionally happy with - if the FLAG choose any other number to provide council it makes it more difficult [to justify].

MAB: Should this use the current allocation [as the proposed allocation is higher and includes water not currently allocated]?

JT: If we add up the current allocations and add this to the minimum flow taken then this will give us the logical cease take number to use to protect the desired minimum flow. [ie the cease take trigger equals the minimum flow plus the allocation amount – in this case the existing allocation, rather than the higher proposed allocation number]

GB: We need to talk to the people who will be affected by this...

MAB: This is a good point as they have not had time to prepare for this.

MLi: Yes, they might have planted summer crops, but is too late now for this.

MS: I appreciate the concern for the farmers – but we could flag this issue with them now— there will also be impacts on Payne's Ford.

HR: They know it's a dry summer coming.

JT: It is not just the dairy farmers, there are other takes near the river for horticultural uses that would also be affected by the cease takes.

MLa: We need to communicate this to the farmers as soon as possible and before we raise it with EPC – we can't implement this for this summer without having warned the farmers first.

MB: It is a shame we didn't have the time frame for summer cropping brought up sooner.

JT: It is up to the Dry Weather Task Force to decide whether to take any recommendation into account in their decisions.

GA: Do the irrigators know a limit is coming?

JT: Yes, they know a cease take is coming, but they don't know when or how much.

RSN: Who can talk to the irrigators?

MLa: I can talk to the dairy farmers and my neighbours.

MS: We should get Tony Reilly involved in this process.

MS: Just because people have consents doesn't mean they should suck the river dry in a drought and the need to put on a sec329 direction may never happen...

JT: I'm an advisor to the Dry Weather Task Force and the Waingaro has never come up before.

GA: So the Dry Weather Task Force can [put a section 329 direction in place] whenever they like?

JT: Yes - the Sec 329 trumps everything [including consent conditions and triggers or rules in the TRMP].

GA: Has it ever been applied to the Waingaro?

JT: No.

MAB: We could bring it to the attention of the Dry Weather Task Force without providing numbers – but say if it gets to a 1 in 10 year drought, they need to think about protection of low flows using Sec329.

MS: Alerts [to water users] should be put out at an annual drought level.

JT: It is very difficult for the Dry Weather Task Force if you don't provide numbers or guidance. At least you need to provide "these are our concerns and this is our thinking".

JT: We could also provide a mail out to the 15 or so users – or take it to the irrigators meeting on the 26th November with the irrigators and then send a letter to the Mayor, Deputy Mayor and Dry Weather Task Force in early December – without going specifically to EPC.

Action: MAB to come up with a draft recommendation for EPC and send this around FLAG for comment.

Action: MLa and MAB to talk to water users on recommendation to Dry Weather Task Force following FLAG feedback.

Action: FLAG to send letter to Mayor, Deputy Mayor and Dry Weather Task Force in early December.

[Post meeting action: Staff to identify the probability statistics for a cease take for the Waingaro at the 80% of MALF minimum flow and allocation set at existing levels (365 l/s) to look at the risk of cut off this summer]

Session 5 – Project Management

Next steps in process / Next meetings

Action: RSN to send out an email asking what the FLAG members think they need information wise to make decisions on water quality aspects.

Proposal to shift meeting on 27 Nov to Friday 11 Dec to allow Tony R to attend [Post meeting note: this has now been investigated and due to attendance limitations the meeting has been kept on the 27 Nov].

The meeting on 18 Dec is to be cancelled as not enough TDC staff are available to progress the work.

Other comments/questions

MS: We were going to correlate the figures we have in the Waingaro with the levels for Payne's Ford – is this happening?

GA: I'm graphing this.

<End of meeting>

Action Points – Council Staff/Facilitator/Advisor

No.	What	Who
1.	MAB to resend invites to irrigators workshop and evening meeting to FLAG confirming venues.	MAB
2.	JT/LM to revise the A-B table, correct the status quo minimum flow etc and send out to FLAG prior to the irrigators workshop. FLAG to provide feedback.	JT/ LM
3.	<i>JT to identify frequency of drying of Fish Creek Spring comparing the proposed allocation regime with the status quo</i>	JT
4.	RY/JT to relook at the relationship between Fish Creek springs drying up, the flows to the main springs and the drying of Fish Creek itself.	JT/ RY
5.	For Te Waikoropupu Springs regime staff are to use the 90%:10% regime [766l/s allocation] for consideration of the potential implications for water quality with a rationing (50%) cut at 7661 l/s and cease take trigger at 7278 l/s.	MAB
6.	MAB to come up with a draft recommendation for Council/DWTF and send this around FLAG for comment.	MAB
7.	MLa and MAB to talk to water users on recommendation to Dry Weather Task Force following FLAG feedback.	MAB / MLa
8.	[Post meeting action: Staff to identify the probability statistics for a cease take for the Waingaro at the 80% of MALF minimum flow and allocation set at existing levels (365 l/s) to look at the risk of cut off this summer]	MH
9.	RSN to send out an email asking what the FLAG members think they need information wise to make decisions on water quality aspects.	RSN

Action Points – FLAG members

No.	What	Who
10.	MS to attend the EPC on the 19 th Nov and give a FLAG update. Update to cover general progress no – needed to tell irrigators first – no surprises approach	MS
11.	FLAG representatives to discuss A/B scenario with irrigators and include this in further considerations for Upper Takaka.	ALL
12.	FLAG to send letter to Mayor, Deputy Mayor and Dry Weather Task Force in early December.	ALL

Action Points – FLAG Sub-groups

No.	What	Who
13.	RSN to discuss with KJ, MLa and MB On determining a suitable date for the open day and output of summary documents/articles prior to the open day.	RSN

Scheduled FLAG and FLAG Subgroup meetings

Date	27 November 2015 (FLAG Meeting 16)
Time	9.30am -3pm
Venue	Takaka Fire Station
Agenda Items	Water Quality – TWS

Information and resource documents identified during meeting

Date	Title	Author/Source
	None	

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

Issues or topics identified during meeting for future consideration

Topic/Issue Description	Requester
None	

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