FLAG MEETING NOTES: 3 March 2017

Purpose:	Takaka Freshwater and Land Advisory Group (FLAG)– Meeting 28
Date:	3 March 2017
Time:	9.30am-3.00pm
Venue:	Takaka Fire station
Present:	**FLAG members:** Graham Ball (GB) Greg Anderson (GA) Mike Newman (MN) Piers MacLaren (PM) Mirka Langford (MLa), Kirsty Joynt (KJ) Martine Bouillir (MB) Mik Symmons (MS) **Staff:** Lisa McGlinchey (LM – Coordinator- Natural Resources Policy) Joseph Thomas (JT -Resource Scientist - Water & Special Projects) Pauline Webby (PW– Policy Planner- Natural Resources) Rochelle Selby-Neal (RSN -Independent Facilitator) Andrew Fenemor (AF -Landcare Research) Roger Young (RY - Cawthron Institute)
Apologies:	Margie Little (MLi), Trevor James (TJ- Resource Scientist – Water Quality & Aquatic Ecology), Tony Reilly (TR), Matt Rountree (MR), Steve Markham (SM – Principal Policy Planner)
Notes taken by:	Pauline Webby (supplemented by other staff)
Definitions and Abbreviations	AMA = Arthur Marble Aquifer FLAG = Freshwater and Land Advisory Group FoGB = Friends of Golden Bay l/s = litres per second MALF = Mean Annual Low Flow NOF= National Objectives Framework – under the NPS-FM NPS-FM 2014 = National Policy Statement for Freshwater Management 2014 TLA = Takaka Limestone Aquifer TRMP = Tasman Resource Management Plan (the Plan) TUGA = Takaka Unconfined Gravel Aquifer TWMC = Takaka Water Management Catchments TWS = Te Waikoropupu Springs SOE = State of the Environment WCO = Water Conservation Order application for Te Waikoropupu Springs and recharge area FM = FLAG Member
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 Lisa McGlinchey by email: lisa@tasman.govt.nz or by phone ddi 03 543 8409.	

NOTE about these meeting notes

These notes provide a summary of the points raised by individuals at the FLAG meeting – they are not necessarily a representation of the views held by any or all members. The comments cover the diversity of experiences and opinions on the group. The views expressed here are also open to develop and change at any time.

Purpose of Meeting

- Discuss technical feedback with Joseph Thomas and Roger Young
- Update from Roger Young on Science Panel Report – changes since last update
- Review Open Day draft resources
- Discuss approach to progression of GMP work for water quality framework

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- Welcome and karakia

Check-in

- Overall a good feeling of the Golden Bay community
- FLAG members feeling some stress from personal attacks
- Maintain integrity
- Reporters wanting interviews

LM provided FLAG with three documents:

- *Current informal water allocation limit for Te Waikoropupu Springs (SM,JT,AF)*
- *Fresh water quantity and quality management powers and methods (SM)*
- *Michael Stewart and Joseph Thomas - response to Andrea Broughton Feedback*

Session 1: Technical Feedback Discussion

- J Thomas and R Young general discussion on technical issues around Professor Williams and A Broughton and others feedback.
- A Fenemor to talk about Upper Takaka irrigators
- The purpose of this discussion is to allow FLAG to be comfortable with technical details around the detail of the feedback and the science.

Professor Paul Williams (feedback #5):

Key points raised by Prof. Paul Williams (PW) and why Council staff have a differing position:

1. **Takaka Hill Zone Boundary:** PW commented that the contributing catchment for the AMA extended beyond the topographical ridgeline of the Pikikiruna Range

- *[This section of the Holyoake catchment is underlain by the Arthur Marble – ie the area around and north of the Ngarua caves]*
- *JT: Boundary – noted that the Riuwaka and Holyoake as well as Marahau areas have regional plan water allocation limits set already.*
- *AF noted that this is based on dye tracing and cave exploration records which have shown that the upper parts of the Holyoake Stream catchment drain towards the Takaka Valley. One implication is that land clearance and land management activities in that catchment would have affected (and possibly*

still be affecting) water quality eg nitrate concentrations in springs including Spittal's along the Pikikiruna Range.

- *RY: noted that water from the other side of Pikikiruna could be affected by land management on the hill country side.*
- *[What controls – if any – are needed in this area is yet to be fully assessed.]*

2. **Confined/Unconfined Zone Boundaries:** PW provides a map showing the boundary of the unconfined aquifer and places it further up the Valley.

- *JT: Council has used the latest bore information that has enabled the location of the boundary to be defined more accurately. Especially bore data from Hamama and upstream of Craigieburn Road.*
- *[Note: the boundaries for all the zones have been based on hydrogeology (not administration), including localised surface and groundwater linkages]*
- *JT: The allocation limits and flow assessments now include better accounting for flow contributions:*
    - *Old approach was to just add consented amounts in an area regardless of their contribution to aquifer or spring flows]*
    - *eg. the physical contribution from Waingaro River is estimated to be in the range 0% to 12 % - Council staff have suggested 8% based on loss in the unconfined reach.*
    - *As part of the Cobb Dam Modelling work it has been shown the Anatoki does not contribute water to TWS*

3 **7-day MALF:** PW noted he agrees with the use of the 7-day MALF statistic.

- *JT: There are misconceptions in the community that he meant using MALF as a cease take.*
- *AF has contacted PW to clarify his comment about MALF being an appropriate basis for setting allocation limits and minimum flows. PW had clarified that he supported the methodology of using proportions of MALF to do this. He had not said that MALF should be the cease take flow for the Takaka water management zones.*

4 **Unconfined and Confined Aquifer Management:** PW queried why the confined AMA was treated separately from the unconfined AMA.

- *JT: There is not a one-to-one effect of abstraction on Te Waikoropupu Springs. It is complex - abstraction effects can't be visually seen or measured at the Springs.*
- *JT: There are proposed to be limits on both parts of the aquifer, but managed as separate zones [due to the differing water quality considerations in the unconfined part, and consideration of total flows through the confined AMA]*
- *AF: From a water quality perspective, the risks to TWS water quality come from the Unconfined and upper catchment flow contributions therefore separate protections are fine. From a water allocation perspective, any take from the AMA potentially affects TWS flows. [AF post meeting clarification: the*

level of allocation proposed from the Confined AMA (50 l/sec) would have an undetectable effect on TWS flows therefore there may be justification for having different or no cease take triggers in the confined AMA, or a trigger head (above msl) at the TWS monitoring bore. It would be justifiable to have a much more nuanced approach to rationing and cease-take triggers in different parts of the AMA, based on the modelled or expected degree of flow reduction at TWS, while maintaining the proposed 766l/s limit, or whichever limit is agreed].

- *[JT: The TWS flow reflects only part of the AMA flow, not all. If we look to manage the aquifer as a single zone, then we would need to use 10% of Total AMA flow - which would be a bigger value than 766 l/s and 50 l/s – ie ~1000 l/s]*

FM: Are we considering cease take limits on confined Aquifer?
JT: We haven't got to thinking about a trigger yet.

FM: Is the trigger used for the recharge area ok for the confined AMA?
JT: No, it is a pressure system – there is no surface flow into the confined Aquifer. Triggers need to be defendable. Hydrological pressure in the aquifer is a potential trigger. Pressure in Confined Aquifer has never dropped below ground level [its always artesian].
[JT: The protection issue is different for the Confined AMA – we want to keep the confined aquifer hydrated - a positive head will do this.]
AF: If the principle of managing the AMA as a whole is adopted, for water quantity management purposes, then a single trigger for unconfined and confined parts could apply. If potential takes from the confined part are limited to 50 l/sec the alternative approach is to say it's 'de minimus' and not bother with a trigger for water takes from the confined part.

Action: *discuss cease take trigger for confined AMA at future meeting.*

JT: We have also suggested the TWS exclusion zone -– further matters can be added to control drilling into the marble including pumping test requirements.

Andrea Broughton (feedback #110):
Key points raised by Andrea Broughton (AB) and why Council staff have a differing position:

1. **Management of confined and unconfined parts of AMA separately**
    - *[refer discussion above for similar query by Prof. Williams]*
    - *[FLAG and Council staff do consider the Confined AMA is linked to the recharge zone – however the management issues are different – hence two zones. See discussion above.]*

2. **Conceptual model issues –** AB claims conceptual model is not correct and shouldn't be used by Council.
    - AB has bought in an alternative solution for the model using Oxygen18 data which point to the sources of water (rainfall, river flows etc)
    - AB suggests connate trapped sea water, rather than connection to sea with marine springs
    - [*AB also believed the conceptual model and oxygen-18 mass balance model formed the bases for determining the revised catchment accounting for how the various catchments contribute to flows at Te Waikoropupu]*

JT outlined:

- *Key point is actual measured flows from TWS were used to set limits for the AMA recharge area. The confined AMA suggestion for 50 l/s was from the water balance model, not the conceptual model; the conceptual model referred to by AB simply identifies various sources of flow to TWS (and beyond) in the AMA.*
- *Model put together in 2008 by JT and Mike Stewart (MS). Mike Stewart has rechecked the model and data – and updated the model using an additional parameter (chloride) which was also measured (refer Mike Stewart's paper provided at start of meeting). This updated model only varies slightly from the previous as to flows – Based on the update MS concludes AB's model alternative is not feasible.*
- *AB had not changed the total inputs of the model.*
- *JT noted that if it is all connate source for the seawater, even if the portion of seawater is small where is the amount of spatial volume in the aquifer?*
- *JT: Stability of TWS head (i.e. springflows) is provided by ocean pressure in the marble aquifer. There is a tidal response in Fish Creek and TWS. Tidal signature is clear from the monitoring data.*
- *[Work done by GNS on the hydrology of the AMA, done as part of the Cobb Dam consent renewal, also informed the catchment accounting for contribution of flows to Te Waikoropupu]*

3. **Proportion of Takaka Valley water coming out at springs** – AB provides alternative iterations of the model with differing proportions of upland, upper Takaka River and valley water flowing out at the springs.

JT outlined:

- *Monitoring shows a difference between Fish Creek and TWS - chemically distinguishable*
- *Major difference are between the portion of water modelled from the different sources coming out at the springs*
- *Mike Stewart has rechecked the model and data – and updated the model using an additional parameter (chloride) which was also measured (refer Mike Stewart's paper provided at start of meeting)*

- *Edgar Thesis was from the 90's and did not have current data.*

4. **Status of the 500 l/s limit – AB questions the use of the term 'informal' to describe the interim policy around the 500l/s limit identified in 1991**

- *[refer summary written by Steve Markham, Andrew Fenemor and Joseph Thomas on this - the interim limit is considered 'informal' as it is not in the TRMP and therefore has no legal status under the current plan. The 500 l/s interim limit has no ability to prevent further consents being applied for or granted.]*
- *JT: Council staff have considered the 500l/s interim limit in managing water since 1991 – but it has not been exceeded until just recently - we are now over the interim/informal limit of 500 l/s as a Commissioner hearing and subsequent appeal to the Environment Court now gives a total allocation of 521 l/s on the previous accounting basis.*

- *LM: Without an allocation limit listed in the TRMP [or clear policy on this] there is a potential "thousand cuts effect" - as the plan does not provide any controls or guidance around the next consent application, or clear direction in assessing whether consents should be granted. Council decisions can be appealed by the applicants and control goes out of Council to the Environment Court.*

- *Every consent application consumes time and resources with people contesting the limit. By setting an allocation regime, the limit - once operative - is beyond contest.*
- *The 500 l/s was a relatively arbitrary 'line in the sand' at the time; more research has now been done to set a better informed allocation limit and rationing regime*

DoC feedback – including review by Kate McArthur (KA) (feedback #162):

1. **How has climate change been considered in the setting of minimum flows and allocation limits?**
   - *JT: Update prediction - for Takaka increasing rainfall for the district.*
   - *JT: If sea level rises there will be more seawater into TWS, and possible increased salination in the coastal area (no further allocation proposed in this area)*
   - *JT: Plans will need to be reviewed through time.*
   - *[AF: the minimum and trigger flows will cut people back more often if flows happen to decrease with climate change, so users will be affected, not river flows]*

2. **Have the proposed minimum flow regimes taken into account the recent research by Hayes et al 2016**

- RY: Yes, the Hayes et al 2016 work was taken into account and instrumental in the approach and framework that was recommended to the FLAG – and is responsible for the differences between the interim framework suggested in my 2006 report and my recommendations to FLAG.

3. **Have other aspects such as bird feeding/nesting been included in the assessments of ecological value?**
   - *RY: The approach that is recommended focusses on instream habitat and ecological values primarily - and assumes that related out-of-stream ecological values, such as bird feeding/nesting are also protected. Specific flow management tools are sometimes needed in large braided rivers to maintain the isolation of river islands where birds nest. However, none of the rivers in the Takaka area are braided and I'm not aware of any island bird nesting locations.*

4. **Waingaro River management** – why are the cease takes provisions not linked to Waikoropupu? Why 80% rather than 90% previously recommended in Young 2006?
   - *RY: A precautionary approach has been used for Waingaro – basing limits on protecting instream values in the Waingaro River is more precautionary than linking it to TWS.*
   - *JT: Likely in a drought upper Takaka and Waingaro cease take triggers would kick in before springs trigger.*
   - *RY: The 80% of MALF recommendation for the Waingaro was based on an updated assessment of the characteristics and values specific to the Waingaro River. The Young 2006 report considered values at a more coarse level and lumped all the major rivers and their tributaries into one group. The recommendation to FLAG was also specific that the 80% should apply to the 7-Day MALF, whereas the Young 2006 report did not specify which MALF should be used. Also it should be noted that based on the results from the Hayes et al 2016 research my recommendations to FLAG are based on a percentage of the **flow** at the 7Day MALF, not a percentage of the **habitat** at the MALF, as was the case in the Young 2006 report.*

5. **Ecological allocation recommendations – seeking independent review of all decisions**

- *RY: The Young & Hay report which summarised the recommendations to the FLAG was peer reviewed by John Hayes – an international authority on water allocation and maintenance of in-stream values.*
- *RY: DOC had Kate McArthur review the recommended water management framework. She noted that the approach was generally acceptable and consistent with work done in other regions, but complexity arises in relation to the contribution of surface water to aquifers and springs. I support the FLAG's*

desire to set an even more conservative minimum flow at Te Waikoropupu Springs.

- *JT: FLAG has always gone with expert recommendations or more conservative*
- *Significance of TWS - FLAG already agreed on the importance - close agreement between FLAG and feedback*

FM: Did we set the minimum flow at Te Waikoropupu Springs at 96%?
LM: yes, but the cease take has been set at 100% of MALF [this needs to be reviewed and clarified]
Discussion on 90% - looked at tables - 96% was worked from a point derived from security of supply. Ecological values was 90% therefore increased precaution with 96%.

6. Questions on whether process meeting NPS-FM and iwi requirements

KA commented that:

- Allocations are based on security for dairy use and allocation limits match waiting lists
- Summary document doesn't consider NPS-FM objectives B2, B3, B4 and policy B1-B6
- There is No inclusion of iwi or cultural values and cultural flows

- *RY: Security of flow is 1 of 3 matters considered and is third in line - behind ecological value considerations in setting minimum flows [and allocation limits]*
- *RY: There is no correlation between the waiting list demands and the amount recommended to be allocated – some are similar, some lower, some are higher - the amount allocated was determined based on ecological values [and what could be sustainably taken, not the demand for water].*
- *RY: Part B of NPS-FM objectives/policies have been covered off in considerations.*
- *RY: We have been clear from the start that there are no cultural inputs in the allocation regime methodology and they are ecologically based. FLAG still need input from iwi on the approach. This is still to come.*

FM: Margie is on Manawhenua ki Mohua, but she can't speak for wider Iwi.

FM: No one understands the depth of the FLAG process – summary report only tip of the iceberg. Importance of it being FLAG that answers the questions - showing the openness of the process.

Upper Takaka Irrigators (Tony Hewitt (TH) on behalf of UTI) (feedback #148):

UTI seeking use of 1 day MALF statistics rather than 7 day, due to the effect of the Cobb flow releases, and use of a downstream recorder in the network.

- *JT: 1 day MALF has benefits for irrigators, but there are other implications for FLAG to consider including consistency with other parts of region and the cease take trigger will be lower than when using a 7-day MALF.*
- *JT 1 day MALF gives a lower cease take trigger, but if we use 1 day for allocation would reduce allocation limit – potential for double dipping if use both 7 and 1 day for allocation/cease take*
- *JT: Cobb is on and off, 1 day MALF would increase security of supply, Upper Takaka different from rest of Takaka – will accept A-B consents*
- *With 7 Day MALF increased water in river - it is more precautionary*
- *RY:7-Day MALF is recommended for consistency with other parts of the TDC.*
- *RY: I can't follow the logic presented in the UTI proposal. The objective of the recommended approach is to ensure that a percentage of the flow at Harwoods makes it to the drying zone without being abstracted. The flows coming from the Waitui subcatchment should be considered separately, not as a compensation for takes from the Takaka*
- *RY: Cobb influences should be considered. It's not appropriate to try and scale Upper Takaka to 7 Day MALF in other rivers. The dam stores water and releases during low flow – long periods of low flow very rare. Irrigators are significantly benefitting from water storage in the Cobb.*
- *RY: The framework recommended to FLAG is a package including recommended minimum flows and allocation limits based on percentages of the 7 Day MALF. Recommendations on percentages would have to be reviewed if a 1-Day MALF was used instead.*
- *RY: A downstream recorder at Lindsays Bridge would provide more resolution/information for managing freshwater takes, but would still be above the Sowman takes. So a cease take trigger there would be minimum flow plus Sowman allocation.*

Action: Staff to clarify exactly what irrigators want – consider the implications of that ecologically.

FM: This may incentivise onsite farm storage.

Don Mead on behalf of Friends of Golden Bay (DM) (feedback #95)

1. **Dr Mead disputes the analysis of nitrate trends in the Main Te Waikoropupu Spring that has been undertaken by the Science panel.**

RY comments:

- *The Science panel approach reached the same conclusion as DM's approach: ie an overall increasing trend, some decline over recent years, but not conclusive.*

- *There may be issues with some high and low data values, which may be incorrect "Outliers". I have analysed the data with and without these outliers and the overall conclusion from both analyses is the same*

- *The Science Panel is being very precautionary, Graham Fenwick being very, very precautionary. There has been ongoing development of thinking.*

- *Chris Hickey (NIWA) is the toxicology expert – DM's commentary says that nitrates are at a critical level - Chris Hickey considers that 0.4mg/L is not a critical point. The most sensitive organism tested in the world showed a small impact at 1.4mg/L which is a considerably higher concentration than 0.4 mg/L. There may be more sensitive critters in stygofauna so FLAGs approach should be precautionary. Recommended range of 0.4-0.5 is very conservative and precautionary.*

- *Also need to consider in relation to maintain and improve requirements under NPS-FM – at the moment the annual median is around 0.41.*

- *Don't assume stygofauna are entirely responsible for water clarity – it is both physical and biological processes.* Biggest filter is gravels, and settling processes will also be occurring in such a large aquifer volume. *Microbes are tiny, but with large surface area -microbes are primarily responsible for organic matter breakdown. Stygofauna mostly arthropods and few in numbers compared to microbes.*

- *Concentrations of nitrogen in water running off the forested hills are very low, but aquifer concentrations may be quite different naturally – water sitting in the aquifer for a long time, in contact with organic debris filtered out in the aquifer, which will release nutrients as it decomposes. Also some release from rock, but not much..*
- *Weekly data collected by Friends of Golden Bay is relatively consistent from week to week– reassurance that monthly level of monitoring is appropriate*

LM: If this nitrate range is identified as safe for stygofauna – what implications does this have for nitrate levels in other parts of the aquifer and other aquifers?
RY: The nitrate range recommended is specific to concentrations measured at the Te Waikoropupu main spring – and has been recommended to protect the aquifer and maintain values of Te Waikoropupu. Water quality characteristics of other aquifers may be quite different. The recommended range shouldn't be applied everywhere.

FM: How do FLAG deal with the black box of issue around Nitrate?
Adaptive management – [so we can change management if needed to meet the objectives].
LM: The numbers are not a smoking gun for land management/uses. There is a very large and unknown black box around the nitrogen cycle and the nitrate numbers.

However, everyone agrees that farming and land use does have an impact on nitrate levels in TWS, but also agreed we shouldn't get fixated on proving attribution, and instead focus work on good practice and adaptive management.

LM hasn't sorted the framework for quality management for water yet – time has been taken up with LGOIMA requests from community, etc.

FM: What's a realistic time for the draft plan change to be competed?
LM: Not able to determine until first draft is completed. There are aspects raised by FLAG and TDC staff (eg consents) that cover lots of wider issues that really need to be addressed district wide - so not sure whether it will be 1 or 2 plan change processes to cover these, either run together or split separately.

Technical aspects to cover for Open Day

FLAG had a general discussion on key points they wished to convey at the public open day through poster information.

- A poster triggers FLAG's memory on key points they've discussed
- Comprehensive / complex
- Whole package – allocations, cease takes and land use / water quality management – GMP, monitoring, incentives
- Not "allocating more" – setting in place an allocation regime – informal limit breached, legal status
- Topical at the moment -swimmable rivers at level already set. Nick Smith level now lower than FLAG has currently set.
    - Maintain and improve - FLAG have already agreed that this is a bottom line.
    - Compare existing situation (97%) to Ministers lower quality
- Avoiding being defensive with community response.
- Poster on current state vs future options – cover:
    - Land use
    - Restrictions
    - Cease takes
    - Triggers
    - Allocation limits
- Consultation feedback useful – prompting debate that may change recommendations

Action: Create poster that shows FLAG's decision on high water quality being maintained and improved
Action: Create poster summarising feedback

Session 2 - Science Panel Update – Roger Young

Roger Young gave an update on the Science Panel Report

Key Points:

- Embargoed draft completed
- More emphasis on 3 linked groundwater dependent ecosystems – the aquifer, the spring basin and the downstream river system
- More specific about which ecosystem each set of data from
- More information on nitrate toxicity and need for conservative nitrate management
- Ranges suggested rather than specific triggers for action
- Some changes to critical attributes
- Annual median recommended as assessment statistic

Action: Staff to send FLAG copy of Science Panel report once available.

Session 3 - Preparation for open day

Group session:

FLAG reviewed drafts of open day information scope and provided comments on content and scope focusing on:

- Must haves vs nice to haves
- Key Messages
- Mock ups of how would FLAG communicate aspects
- Clarity of information

Action: Any FLAG members wanting to provide further input to contact Lisa

Action: LM to review group session sheets and include those that want further input

Group discussion: How are public meetings going to be run and how do we manage risks?

Risks:

- Venue - do we change venue to a bigger venue?
- May not have numbers come
- Grandstanding and capture of the floor- Give others a chance to be heard – especially if they haven't had interaction with FLAG already
    - Need to go with flow a bit
- TV/media may be present
    - FLAG is there for the community
    - Public meeting - media is part of this
- Perceived conflicts of interest
    - Be open about who and why
- Work with how you are comfortable talk about particular questions

Process and timing:

- 1.30 arrive and settle

- Presentation time is this set?
- FLAG members introductions
    - who and why on FLAG
- LM to introduce staff and other assisting members
- RSN - to outline tikanga – meeting behaviours
    - Tikanga is a way of going forward and a safe space - focus on mahi and kaupapa
    - Cells phones off
    - Acknowledgements, use meeting karakia
- Mik's presentation
- Mik and Rochelle to co-chair
- Scribing- Lisa
    - Capture issues
- Debate on tea and coffee at the beginning or the end
    - Shift to after- help yourself
- 30 mins to look at info
- Sessions starting at rough outline approx. 15-30 mins after advertised time
- Who's answering questions from floor? - share around
- discussion on room layout - to go down and have a look.
- Keep posters low key - limited space

Action: Prepare resources list - including paper and pens

Session 4 - Project management

Next meeting after open day

- Discussion about what the issues are with various days
    - Thursday don't work for councillors
    - Alternative Thursday - Friday?
    - Close to open day
- Staff report after open day
- A lot of communication can be by email or other online spaces could be created to interact -closed space but interactive - looking at options

Session 5 – Water quality framework - GMP

Due to time constraints, LM gave FLAG a brief overview of intended process for development of water quality framework and good management practice.

Key points:

- Need to talk to local farmers about good management practice – defining what this means in Takaka context
- Need to consider how GMP would fit in plan if a regulatory approach used – with current plan structure – it would be spread across several places in TRMP
- Suggesting staff to work with farmers and bring back outputs to FLAG.

FLAG members happy with proposed approach.

<End of meeting>

Action Points – Council Staff/Facilitator/Advisor

No.	What	Who
1.	Discuss cease take trigger for confined AMA at future meeting.	JT/ LM
2.	Staff to clarify exactly what irrigators want – consider the implications of that ecologically.	JT /RY
3.	Create poster that shows FLAG's decision on high water quality being maintained and improved	LM
4.	Create poster summarising feedback	LM
5.	Staff to send FLAG copy of Science Panel report once available.	LM
6.	LM to review group session sheets and include those that want further input	LM
7.	Prepare resources list for open day - including paper and pens	LM

Action Points – FLAG members

No.	What	Who
8.	Any FLAG members wanting to provide further input to contact Lisa	

Action Points – FLAG Sub-groups

No.	What	Who
9.	none	

Scheduled FLAG and FLAG Subgroup meetings

Date	Friday 10 March 2017 (public open day)
Time	1pm – 9pm
Venue	Bowling club
Agenda Items	Public open day

Date	TBC - Friday ?? (FLAG Meeting 29)
Time	9.30am -3pm
Venue	TBC
Agenda Items	Open day debrief

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
• none

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