Management options for the Cardrona River and Wanaka-Cardrona Aquifer

Compilation of feedback received

During a community workshop on 11 June 2013 ORC presented community members in the Cardrona Valley and the wider Wanaka area with a number of options for managing the Cardrona River. Three minimum flow options were presented for the Cardrona River. These options were:

Option A – Continuous Flow:	700l/s @ Clutha Confluence (All year)
Option B – Peak Holiday Season Flow	700l/s @ Clutha Confluence May – Jan
	400l/s @ The Larches Feb- Apr
Option C – Extended Low Flow	700l/s @ Clutha Confluence May – Dec
	400l/s @ The Larches Jan- Apr

Two options were presented for a primary allocation limit for the Cardrona River. These options were:

Option A: 500l/s Option B: 1,000l/s

At the same time, ORC also presented two options for managing the Wanaka Basin - Cardrona Gravel Aquifer:

Option 1: Maximum Allocation Volume of 5Mm^3/yr
Option 2: Maximum Allocation Volume of 8Mm^3/yr + Restriction Level over eastern portion of aquifer

Following the presentation of these management options a call was made for feedback and a follow-up meeting was held on 27 June 2013. The sections below show the feedback received.

Options for a Minimum Flow

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
1	C-Extended low flow	*"Benefits the whole community"*	Continuous flow	*"Too hard on irrigators."*
2	A-Continuous Flow	" *If it is tough for farmers, bring it in gradually with plenty of warning and education. Promote deep-rooted fodder crops for supplementary feed during dry months, block headwaters with seeping wiers, create storage ponds"*	Peak Holiday Season Flow & Extended Low Flow	*"...can result in sudden changes of river ecology with damaging effect on ecosystems (fish dying on dry river bed)."*
3	C-Extended low flow	*"Very important to have water over February and March. Look at economic impacts."*	Continuous flow	
4	A - Continuous Flow	*"Would accept compromise between options A and B"*	Extended Low Flow	*"Find solutions to increase water in the catchment (use of tussock and planting riparian margins)."*
5	N.A.			
6	status quo - 300l/s at Clutha confluence	*".... all the options presented severely inhibit the ability to irrigate at the most critical growing time in the farming calendar."*	Continuous flow, Peak holiday season flow & Extended low flow	"*These* [options] *all stop irrigators spreading water at the peak time for growing crops. Stopping irrigating at that point inhibits the ability to grow crops when irrigation is allowed to start again."*
7	C-Extended low flow	*"Maintenance of as close to the present position is important."*	Continuous flow	*"Does not seem fair or appropriate."*
8	C-Extended low flow		Continuous flow	*"... will stifle economic activity in the Cardrona, with a flow on effect to the Upper Clutha Region."*
9	300l/s at Clutha confluence	*"Means we are using our natural resource."*	Continuous flow	*"Why waste water!"*

[1] Where respondents did not like any of the options presented by ORC and proposed an alternative option, we have shown the alternative option as the preferred option.

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
10	C-Extended low flow	*"Irrigation in farming allows me to get third cut of Lucerne to help us get enough feed supplies for the winter."*	Continuous flow	*"Farmers can't irrigate and make enough hay. Production can't go ahead without correct amount of water."*
11	300l/s at Clutha confluence	*"What's the point of having water in the river after the fish have spawned so that it can run waste, when we could be using it to recharge the aquifer through irrigation."*	Continuous flow	*"Let's not hinder the farmers."*
12	C-Extended low flow	*"How ridiculous! We are concerned about a possible swimming hole in summer when the community has a lake at its doorstep and numerous creeks and rivers that are far superior to the lower reaches of the Cardrona."*	Continuous flow	*"Fish migrate elsewhere when needed. Farmers can't."*
13	300l/s at Clutha confluence		Continuous flow	*"...would stop all irrigation in the summer when it is needed the most."*
14	C-Extended low flow	*"Without access to irrigation my farm becomes uneconomic."*	Continuous flow	*".... keep the crop and pasture going."*
15	Status quo	*"Let the farmers get on with growing lamb chops."*	Continuous flow	*"What a waste of a resource."*
16	C-Extended low flow	*"Without access to irrigation my farm becomes uneconomic."*	Continuous flow	*"The spawning fish are gone by early November."*
17	C-Extended low flow	*"I would like to question the 'attractive to locals and tourists' assumption that the Council uses under 'Amenity and Natural Character'. How big is the sample? ....Some people may like a river that runs continuously, but others don't care, and yet others like the dryness. Why is the Council only giving weight to those that like the continuous flow? This is not an objective analysis."*	Continuous flow	*"I have never swyum in the Cardrona. We use the lake."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
18	C-Extended low flow	*"Whatever is the best to allow farmers to survive"*	Continuous flow	*"Farmers miss out."*
19	300l/s	*"What is the use of running more water to waste."*	Continuous flow	*"I like the summer dry bed of the Cardrona River."*
20	C-Extended low flow	*"How can we take the water from the farms. It's our history."*	Continuous flow	*"Dumb! Dumb! Dumb!"*
21	Flow at Clutha confluence		Continuous flow	*"Give the farmers a break."*
22	C-Extended low flow		Continuous flow	
23	Other		Continuous flow	
24	C-Extended low flow		Continuous flow	
25	C-Extended low flow		Continuous flow	
26	Other		Continuous flow	
27	Other		Continuous flow	
28	Other		Continuous flow	
29	C-Extended low flow	*"The availability of water is very important for crops and pasture."*	Continuous flow & Peak holiday season flow	*"If it gets dry we will not have enough water to irrigate with."*
30	C-Extended low flow	*"Let's help farmers out. If that means some fish move to the Clutha earlier, then so be it."*	Continuous flow & Peak holiday season flow	*"Don't help the trout. Only help to remove them."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
31	Set the level at current flow.	*"We like the river as it functions currently."*		*"Don't mess with what works."*
32	C-Extended low flow OR Other		Continuous flow & Peak holiday season flow	*"A and B are extreme."*
33	Other	*"Everything works really nicely for our family currently... fishing, mountain biking. Great little river! Keep it as it is."*	Continuous flow, Peak holiday season flow & Extended low flow	*"Don't mess with it."*
34	C-Extended low flow OR even lower	*"Love the green flats in summer. Beautiful contrast to the dry hill. And the dry river is unique. An underground river."*	Continuous flow & Peak holiday season flow	
35	C-Extended low flow	*"Give the rednecks a break. They farm hard. They look after the land. We still find the river workable for recreation."*	Continuous flow & Peak holiday season flow	
36	C-Extended low flow	*" Make it as low flowing as possible. Please help remove the introduced species - trout!!. Let the river go dry if it wants."*	Continuous flow & Peak holiday season flow	*"Too much water! Too much area for trout to hide."*
37	Leave things as they stand	*" I fish the Cardrona and it fishes great."*		*"I dislike anything that will disturb how the river works currently."*
38	Current lowest flow	*"Everything seems to be working very well these days. Green pasture in summer, winter feed, happy fishermen."*		

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
39	C-Extended low flow	*"Farmers surrounding us are dependant on irrigation to survive. The riverbanks form Larches to Ballantyne Rd bridge are a disgrace. It is a rubbish tip. Certainly there is no tourism factor to consider."*	Continuous flow & Peak holiday season flow	*"Continuous flow would have a huge impact on the sustainability of the Cardrona farmers. There is no impact on fish habitat with irrigation being taken during the summer months."*
40	C-Extended low flow	*"Would have little impact on how the river flows now."*	Continuous flow	*"Would restrict employment and have a huge impact on the Upper Clutha region."*
41	Other	*"I have a vested interst in tourism within the Cardrona Valley. I want to see the valley continue operating in all areas (including farming) as they have done for years and years. The irrigating means the valley looks fabulous throughout the year and there is no obvious impact to the environment that I see."*	Continuous flow, Peak holiday season flow & Extended low flow	*"Who wants to swim in the river in July? I don't understand the problem. The river has always run dry. Cardrona as a community has grown since I arrived 5 years ago and is heading in the right direction. Let's not upset the farming community ... !"*
42	Other	*"....the Cardrona River has always run dry for generations, but the river is still running at the Mt Barker bridge just under the surface. I understand from talking to the locals the fish have not been affected. It appears they have adapted very well to the river running dry and it would appear they are making the upper reaches their permanent home. I would rather swim in the lake so I can get right into the water than just get my feet wet. I would have thought that the irrigation water would be helping hugely with the groundwater replenishement."*	Continuous flow & Peak holiday season flow	*"I can see no benefits, especially in option A, ... We all need to eat and who better to feed us than our NZ farmers who do a wonderful job and they appear good custodians of the land. From what I see irrigation is the saviour all over the place, and Cardrona Valley would be no exception."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
43	Other	*"Why have a minimum flow at all? The Cardrona traditionally runs dry anyway. I don't know anyone round here that swims nor fish it ..... There are plenty of better places close by. That's why everyone goes elsewhere or away from this strecth of river bed."*	Continuous flow, Peak holiday season flow & Extended low flow	*"No one needs it, even when it goes dry you seldom see a dead fish ...."*
44	Other		Continuous flow, Peak holiday season flow & Extended low flow	
45	Other	*"Limited number of tourists in that area. Not seen any fishermen on the river. Would like to see a team of farmers and council who would work for the benefit of this community, which includes of course farmers. A control body should be introduced to oversee and facilitate meetings and provides non prejudiced advice."*	Continuous flow, Peak holiday season flow & Extended low flow	*"Not happy with any. Option C probably the best option."*
46	B-Peak Holiday Season Flow	*" Option B provides for the ability to recreate in the river over the holiday season. …* *There is an obvious tension between the extreme options A and C. Having listened to the ORC experts it seems possible to accommodate a period until end of January (or maybe mid January) when there is continuous flow. …* *The key seems to be the allocation of 400l/s at the Larches, which is more or less the historical situation. If some of this were to come from bores rather than run of the river as at present, then an*	Extended low flow	*"Although economic considerations are important they should not in all cases be paramount. A river has intrinsic values both visually and biologically and physically that make it important for it to flow as long as possible.* *There is also a property right issue. Irrigators naturally are protecting their property rights by wanting as much water as they would like.* *Everyone owns a river and the public has a right to expect that the ORC is going to weigh their inherent right of ownership in the balance. "*

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		extended flow during some of January should be possible. … *The consent holders in the lower catchement have more options than those in the upper catchment. …* *If flow continuity is achieved, there will be a need for further work to make this environment attractive. A lot of planting was done by locals and F&G but this was washed out during the flood of 1999. Is it technically possible to improve the long term amenity of the area? This will not make this stretch of river a good fishery: It will provide for fish passage, but is too hot for good fishing. The problem for the Clutha fishery is secondary silting caused by didymo: silt comes down from the Cardrona and settles in the Clutha. ….* *Research points at the importance of passive river recreation (e.g. walking, picnicking along the river). ……* *The river has an intrinsic value to exist….* *Preserve native fish. They are up in the tributaries and tend to be forgotten…..* *Consider environmental compensation for out of stream water use (e.g. remedial works in lower section)."*		

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
47	Compromise between options A and B	*"...would avoid the dry reach, but still allow some form of controlled irrigation over the summer period. For example, instead of stipulating the flow at The Larches between February and April, the flow at the Clutha confluence for this period could be set at a minimum of 400 l/s which should still give a flow of 100 l/s at SH6."*		
48	Other	*"Keep a sense of proportion. There have been many references to the use of the river for angling. In my 36 years of occupation I have never once seen either a person fishing the river, or a trout in the river. If a balance has to be struck between competing users, angling should be very low on the scale. The region/area has a multitude of great fishing waters and they do not include the Cardrona."*		
49	300l/s at Clutha confluence	*"Any minimum flow set on the Cradrona river in our arid farming environment will undoubtly have an effect on economic viability. The status quo situation is sustained for fish and farming. .... Why try and fix something that is not broken."*	Continuous flow, Peak holiday season flow & Extended low flow	*"... too restrictive for the dryland, harsh summer properties that we farm in the Cardrona. Running an economicaly sustainable farm allows many positive spin-offs for the land and the people that are employed around the whole farming business."*
50	No minimum flow restriction	*"Support all the farmers that use surface water for irrigation in the Upper Cradrona catchment. .... Farming economic viability is essential."*	Continuous flow, Peak holiday season flow & Extended low flow	*"Any minimum flow restrictions under these options in the Cardrona Valley will make farming economically unsustainable."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
51	300l/s at the Clutha confluence	*"Economic viability through irrigation is paramount to the welfare of the land. Weed and pest control in the Cardrona Valley is a major cost to the farmers ..."*	Continuous flow & Peak holiday season flow	*" Too restrive on farmers through the heat of the summer months. Farmers are encouraged to modernise thier irrigation spending hunderds of thousands of dollars. There is no economic sense in this if you are going to stop them using the water when they most need it."*
52	A-Continuous Flow	*"The lower river has very limited natural appeal and has an unusual geological form which encourages it to dry bed in the lower reach. …. The economic benefit outweighs the river ecology and fish welfare in this case."*	Continuous flow	*"Provides to tourists and has severe impact on the economic farming benefit."*
53	C-Extended low flow	*"Farming continues to be a mainstay of our community in Wanaka. We must do everything we can to protect the viability of farming in the valley."*	Continuous flow	*"Could have a very detrimental effect on farming and related industries, while not giving any real benefits to the "other values". There is nothing wrong with the river drying out in summer. Where is the evidence that the tourists have a view on changing the present nature of the river. Tourism is correctly focussed on other areas..."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
54	300 l/s at Clutha Confluence - maintain the present status.	*"The river has unique charcteristics (above and subground flows). Irrigation has been a feature of this river for over a century. .... The river has coped well, as is evident in all your research."*	Continuous flow	*"Amenity and Natural Character: With Lake Wanaka so close this river has little use.* *Recreation : No impact on "fishing". For the "dry" time alternatives are available.* *Tourism: Not seen by toruists travelling at the SH6 bridge. The tourists are travelling at 100km/h.* *Ecological: Evidence shows that the status quo is working well.* *Economic: other than agriculture there is little other economic activity. E.g. No use for energy production.* *Agriculture: This is the most important use of the river in a productive sense. Without the present appropriate access to the resource a century of economic use of the land will cease to the detriment of the region."*
55	300 l/s at Clutha confluence during low flow season	*"...to support the agri systems, but still allow flow for recreation and ecology to be sustained."*	Continuous flow	*"Not an economically viable option for agriculture and will have a negative impact on land values, production which will also have a negative impact on the wider community."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
56	300 l/s	*"I believe there is potential to set below option C. The status quo seems to be providing satisfaction to the majority of users the majority of the time. It's not proven that higher flows achieve more for a bigger part of the community. And the fishing has been getting better for many years. Fish and Game have said " We just don't know" on the impact to fish population of different flows. Let's maintain the status quo as it's working."*	Continuous flow, Peak holiday season flow & Extended low flow	*"I am not convinced these achieve much real change for anyone apart from the farmer and that is negative change for them."*
57	C-Extended low flow	*"Our farm is dependant on irrigation water being available January to April. Without water stock numbers would need to be decreased making our farming operation uneconomic. Our winter feed is made during this period."*	Continuous flow & Peak holiday season flow	*"I do not believe that the Cardrona river is a tourist attraction. I have farmed here for 40 years and families for 3 generations prior. Rarely I have seen people picnicking or swimming. We have a beautiful lake for recreation. Low flow over summer has no effect on spawning fish."*
58	C-Extended low flow	*"From January through to March all our hay and baleage is made to feed stock over winter. Without water from irrigation this operation would not be possible. Having to buy winter feed would make our farming operation uneconomic."*	Continuous flow & Peak holiday season flow	*"I believe that the river flow would have no impact on tourists and local walking or picnicking. Reduced flows has no impact on native fish habitat. Adult trout return to the clutha in spring and early summer so reducing the flow will have no impact."*
59	C-Extended low flow	*"Very important to have water January to April as this is the time of year crops are grown for winter feed. ... I have never seen anybody fishing in the river."*	Continuous flow & Peak holiday season flow	*"Our property would be unsustainable with this option. There are lots of fishing options available in the Upper Clutha. From the Larches to Ballantyne Rd Bridge the river is not very attractive. It is not a tourist attraction. "*
60	C-Extended low flow	*"Will accept a small reduction over summer for ?? days as long as present allocation is adhered to. When we apply for dam consents to cover this*		*"A & B would impact too much on our current irrigation policy"*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		period ORC will hopefully be sympathetic."		
61	300 l/s	*"Option C may work. Option D would suit the Cardrona farmers and would look after our Valley floor and farmers. Option D is our best option ."*	Continuous flow & Peak holiday season flow	*"Options A and B would never work."*
62	A - Continuous Flow	*"...enables me to longer utilize the river. With the cessation of excessive gravel extraction the river is recovering below Larches and above Ballantyne Bridge and it is offering a lot more recreational walking and bathing, and the pools are getting good recreational use by visitors."*	Extended low flow	*"Far too restrictive on river use. Ballantyne Rd is the nearest access to town and the river is popular."*
63	Other	*"Why change it, because the water is still running underground?"*	Continuous flow & Peak holiday season flow	*"We cannot afford to give up any water irrigation rights. Our farming operation would not be viable with current stock levels. If we can't irrigate as much as possible over December, January, February and March we can't grow as much feed for the winter. If the farm has to destock then I may lose my job as the farm may not be able to pay for my wages due to the loss of income."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
64	Other	*"....Water is a necessity in farming. Farming is is our livelihood. ... A minimum flow for recreational purposes and attractiveness for tourists is too hard to comprehend. The area down where the river goes is just appalling. There has been very little weed control, if any at all, carried through and this is all unfarmed land! The Cadrona river has been this way forever (i.e. flowing underground at a certain time of year) and it is working the way it is. Please do not make people's pleasure take importance over our future. I just do not see the point in wasting water for the odd person to see when it is so valuable to us as farmers who have had this water right for generations."*	Continuous flow, Peak holiday season flow & Extended low flow	*"The Cardrona has always run underground and always will. The fish are adapting to mother nature's ways. There are other amazing rivers and lakes so closeby which are so much more suitable for fishing and swimming. The Cardrona River is so cold and shallow. The lake is much nicer to swim in and safer. The Clutha has some of the best fishing. Also there are some locals that like the dry area in the Cardrona. They go riding bikes, horses and walking. They do not care because it is what it is. This proposal has already cost people - yourselves and us - a lot of time, stress and money. Why are you playing around with people's livelihoods? We rely on water. Water is gold to us farmers."*
65	Other	*"Regardless of whether water is taken or not, the nature of the unique climate in the area will inevitably dry up the riverbed in the area of concern."*	Continuous flow, Peak holiday season flow & Extended low flow	
66	Other	*"The river still flows underground. It always has before rural irrigation demands. Due to our tenuous growing season we demand access to a natrual resource that supports our natural holdings."*	Continuous flow, Peak holiday season flow & Extended low flow	*" I have noticed a significant increase in the robustness of the upper Cardrona fishery. As a fisherman, I have realised that the resident fish population has become self propagating due to the closure of traditional salmon and migratory and spawning traits. The aesthetics argument around the "look" of the dry river bed is a nonsense given the subjective view …."*

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
67	Other	*"Why introduce a minimum flow. We already have a minimum flow of 300l/s at the confluence of the Clutha River, which never alters. Irrigation is so important to us at the right time of the year beginning November to April, and especially December and January. As we live at 1800ft above sea level, our growing season is 6 weeks less than Wanaka. We desperately need all our water in the height of summer to grow our winter feed, also to be able to make silage etc. to get us through the winter. Otherwise we will be deemed as unviable. The community needs the farming community …."*	Continuous flow	*"Who wants to swim in the Cardrona River in July! No one would ever like to picnic in the area that naturally goes dry every year, as it looks like a dump. Even if it had a low flow it would still look like a dump. There is a healthy fishery in the river. Now even with it going dry. So to say we must protect the fish with a continuous flow is unfounded."*
68	Other	*"Why have a minimum flow? The skifields need water in the winter. This build up of snow melt and reserve will help the river flow. Farmers need water all year for one reason or another. Farmers need water to survive. We need farmers in the Cardrona's community or our township won't flourish. Anyway, they won't take all the water, so what's the problem?"*	Continuous flow, Peak holiday season flow & Extended low flow	*"The historic dry Cardrona in the past is unique. Instead of seeing the expected and advertising that it's different and why. Would tell people, visitors and interested parties how underground waters act and link! ... used to go dry before miners and farming, dry before 1865."*

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
69	Other	*"Water is vital for us to help meet our financial requirements. ... our growing seasons are very short. Quality care of our pasture throughout the spring and summer months is crucial for the development of our winter crops. If we were unable to water our land during these dry periods the grass will burn off early in the summer and not get a chance to recover. ..... As for the fish in the upper reaches of the Cardrona River, in my experience, there are more fish there than there ever has been. The water continues to be clear, clean and pristine throughout the entire year."* *"The Cardrona is an important trout (brown and rainbow) spawning and rearing area for the Upper Clutha River and Lake Dunstan. Its full potential is limited by low and discontinuous flows in the river below the Larches where there are strandings and fish mortalities in summer. The river is locally important for angling and provides diversity in terms of angling opportunity close to Wanaka township. ....."* *"In a catchment where irrigation is long established and farming infrastructure is already in place that is not realistic but neither should the obligation to improve the instream environment be ignored. Relinquishing some water will impact on irrigators but those impacts can be mitigated by, for example, moving to more efficient forms of*	Continuous flow, Peak holiday season flow & Extended low flow	*"Recreation: There is a lake 5 mins drive away. Tourists probably don't even care. They like to see nice green pastures. Fire risk if the paddocks beside the main road weren't watered. This poses a huge fire risk."*
70	A - Continuous Flow			

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Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		irrigation….." *"… spawning and juvenile rearing are the dominant values but adult trout habitat values should be given some consideration. Because the Cardrona is important for spawning and rearing, flows should provide well for those values, not just at the critical threshold….."* *"The enhancement of tall tussock grasslands on public and private land in the headwaters of the Cardrona River may offer options for increasing water yield and sustaining and increasing downstream flows during dry periods…."* *"[submitter] wants river flows to be restored so that the connection to the mainstem Clutha is maintained but there are large losses to groundwater below Larches and heavy demand for irrigation water…."* *Losses to groundwater may be exacerbated by gravel extraction which has occurred around Ballantyne Road Bridge, also lowering the river bed and removing natural riverbed characteristics.* *There is some correlation between 90% of MALF and optimum flows for trout fisheries but something of a gulf between 90% MALF and flows at critical threshold point, which are unlikely to restore flow connectivity.*		

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71	Status Quo	*"To ensure enough feed is on hand to maintain our stock the ability to irrigate at the optimum time is essential. For our property the effect of not being able to irrigate for even a few days can mean having to buy in feed or sell capital stock. This is an expensive exercise and affects our viability….At present the river has good water quality and healthy eco-systems despite or perhaps because of current use. …The Cardrona River has a natural minimum flow, at the confluence with the Clutha. There is at any time during the year a minimum of 300ltrs/sec flowing into the Clutha. This happens no matter what else is happening upstream. For the minimum flow to be set at any other level is not only not sensible but not practical….There is a need for an amount to flow at the larches but it does not need to be 400ltrs/s…"* *"I prefer Status Quo (Natural minimum flow):* ➢ *Flow continuity May to Nov 30 300ls/s min 1st May to 1st Dec (often over 700l/s)* ➢ *Low Flow Dec to April (300l/s at Confluence* • *Flow continuity to end of Dec. Attractive to locals and tourists. Some dry periods Jan to March* • *Irrigation available for whole season. Winter*	Continuous flow & Peak holiday season flow	*"Options A and B are both extreme and would effectively make my business and home unviable for the sake of a minute percentage of fish and some vaguely held aesthetic value.* *Option A – restrictions will impact on employment and business opportunities* *Option B – Missed opportunity to irrigate in early summer.* *Option C comes closer to the mark but still does not properly address the shortened growing season in the Cardrona and the effects of restricting water takes in the crucial periods."*

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		feed able to be established. Better management of entire properties • *There is a healthy fishery in the river with good early season trout fishing in the Loosing Reach. Trout migrate out of that section of the river toward the end of November but there is good fishing further up the river. There are many swimming holes spread throughout the length of the river. Some disappear when the loosing reach dries but there are many alternatives. There is ample scope for Walking, Mountain biking, fossicking, and careful powered driving on the dry riverbed in the summer months.* • *Some people like to see & enjoy recreation in the river. These activities can be found above and below the Loosing Reach. Others enjoy the recreations mentioned above, in the dry river bed.* • *Flow maintains habitat for yearling and fry above the Larches. Adult trout return to the Clutha in spring/early summer. Minimum flow has no impact on native fish habitat.* • *Number of restriction days 0-7 during periods of low flow in the river there could still be restrictions. This is best done as a cooperative management scheme involving Council and the farmers .”*		

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
72	A - Continuous flow	*"Option D allows for all the things that are currently perceived as good in the river to continue and any disadvantages are limited to minor aesthetic effects in an extreme season."* *"The deterioration of fishing in both the Hawea River and the Upper Clutha River as a result of the infestation of both of those rivers by Didymospenia germinata (Didymo) has significantly reduced the opportunities for fishing near Wanaka. Both the Hawea and the Upper Clutha now hold relatively few fish compared to pre-Didymo conditions. The Cardrona remains as the only stream near Wanaka providing good fishing opportunities, even if it is mainly limited to the period from October to December. Didymo has not affected the Cardrona, although it is present, because the mobile finer gravels and sands in the Cardrona River largely prevent Didymo from proliferating.* *It is suspected that the effect Didymo smothering much of the river beds in the Hawea and Upper Clutha Rivers has reduced spawning habitat in these rivers. Areas that were formerly gravels now appear to be completely covered in Didymo. For example, the lower reaches of the Upper Clutha River at the head of Lake Dunstan are now dominated by mats of Didymo and silted up. The*	Peak holiday season flow & Extended low flow	

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		loss of these former spawning areas means that the Cardrona is arguably becoming more important as a contributor to the trout populations in the area. More wetted area in the Cardrona means more habitat for trout fry and fingerlings and that contributes more fish to the population of trout downstream in Lake Dunstan. *The loss of continuous flow below the Larches prevents both adult and juvenile trout from migrating downstream to the Clutha River when flows further upstream become too low and water temperatures too high for trout in the Cardrona River in mid summer. It also prevents the upstream migration of trout back into the Cardrona above the Larches when stream conditions improve.* *Farmers have other viable options for the productive and economic use of their land for agriculture that does not require them to abstract water to the point that continuous flow is lost in the Cardrona over the summer months. There are also options for farmers to use less water more efficiently and for water storage. Fish do not have options, they require a continuous flow of water to survive and to migrate upstream and downstream as part of their life history.* *There is an enormous volume of water available*		

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
73	A - Continuous Flow	*from the Clutha River for the agriculture industry. This is a source of water for agriculture that is an alternative to abstracting water from the Cardrona (particularly in the lower reaches of the Cardrona downstream of the Larches) that has not been adequately investigated by the agriculture industry. While there would be a cost to farmers from such an alternative, it places the cost on those that would reap the financial returns from the use of the water rather than placing the cost on the community and the ecology of the Cardrona River. "* *"...There has been frequent reference to anecdotal evidence that the River in the area around Ballantyne Road has always dried up in the summer. However, it is anecdotal evidence....and needs to treated with some degree of caution....* *There has also been some discussion ...regarding the potential for a walking and cycling track along this section of the Cardrona River, and a general desire to see this section of the river improved by the removal of invasive broom, and some control of the gravel extraction resource consent conditions. There are dust issues from the riverbed especially when gravel is being extracted and processed, and having the river flowing above ground would assist a little with this issue.*		

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		I would like a flow rate which ensures that this section flows above ground all year round. I accept that this may be challenging if the productive use of the farm land upstream is to be maintained. However I believe the very minimum acceptable outcome of the process would be the scenario that allows above ground flow in this section at least during the key summer periods as discussed at the meeting. *It was clear from the meeting that the main water users conceded that it was possible to use the resource in a more efficient manner. However it was also clear that as this would have a cost implication they were not interested in considering it as an option .There seemed to be no understanding that the status quo was not an acceptable option in view of the national standards that have been introduced, together with the expiry of the existing water rights.* *I urge the council …. to find a result that combines their ability to farm with improvements to the river and a substantial – if not total - reduction in the periods that the river is allowed to dry up in the lower section.* *If it is not feasible on the short term to set a minimum flow that provides for flow continuity all year round or that reduces the periods that the*		

	Preferred option(s) for a minimum flow		Least liked option(s) for a minimum flow	
Respondent ID	**Preferred option [1]**	**Comments/ Reasons**	**Least liked option**	**Comments/Reasons**
		river is allowed to dry up is not achievable on the short term, I would accept a solution that provides for a gradual transition from option C to Option B or option A. The last thing I want to do is to put the irrigators out of business. "		

Options for a Primary Allocation Limit

Respondent ID	Preferred option [2]	Comments/ Reasons
1	B - 1,000 l/s	*"Reflects what is happening now. We should be protecting not enhancing."*
2	A - 500 l/s	*"Educate farmers how to harvest water. If farmers don't like the cap, impose a financial tax or charge."*
4	700l/s	*"Compromise. Review every 5 years."*
5	A - 500 l/s	*"Surety of supply for existing consent holders."*
6	Have discussion at a later time	
7	B - 1,000 l/s	*"Option A will have a major impact on farming, with little gain to the other values."*
8	B - 1,000 l/s	*"Economic production should not be stifled"*
10	Wait until more information is available	
11	Other	
12	Set higher primary allocation limit	*"Set too low."*
13	Set after existing consents are renewed.	
14	Other	
16	The sum of renewed existing consents in 2021.	
17	Other	*"The proposed limit is set too low."*
18		*"Too hard"*
19		*"How would I know?"*
20	Other	*"Doesn't make sense."*
21	Wait until more information is available	*"More info required."*
22	Other	*"Let's not hinder the farmers!"*
23	Other	

[2] Where respondents did not like any of the options presented by ORC and proposed an alternative option, we have shown the alternative option as the preferred option.

Respondent ID	Preferred option [2]	Comments/ Reasons
24	Other	
25	Other	*"River most years dries up during summer months in a dry season."*
26	A - 500 l/s	
27	Other	*"Let nature take its course. You can't regulate everything."*
28	Other	*"The lupins look great in a dry riverbed."*
29	Other	
30		*"??"*
31		
32		*"Can't comment. Don't know how much L/s actually are."*
33		*"??"*
34		*"Don't know this part."*
35	Wait until more information is available	*"Need to understand more."*
36	Other	
37		*"Don't know what this really means."*
38	Have a discussion at a later date.	*"This is too early."*
39	Wait until more information is available	*"Cannot comment as not enough information."*
40	B - 1,000 l/s	*"Less constraints on the future development than under Option A."*
41		*"I have no vested interest and I should not be asked to comment."*
42		*"This question should be for the farming community to answer only."*
46	Compromise between 500 and 1000 l/s	*"I am not sure how having the river run a little longer in the summer would affect the primary allocation limit, but I would favour a slightly conservative approach in the order of 850 l/s"*
47	Compromise between 500 and 1000 l/s	*"Would also help to avoid a dry reach between The Larches and SH6."*
48		*"Keep a sense of proportion. There have been many references to the use of the river for angling. In my 36 years of occupation I have never once seen either a person fishing the river, or a trout in the river. If a balance has to struck between competing users,*

Respondent ID	Preferred option [2]	Comments/ Reasons
		angling should be very low on the scale. The region/area has a multitude of great fishing waters and they do not include the Cardrona."
49	Set allocation limits in 2021	*"This is not a good time to make a decision on primary allocation. As time goes on there will be more information available to make a more informed judgment. The Deemed Permits come up for renewal in 2021 and all allocation limits should be set then."*
50	Reserve decision until 2021, when all deemed permits come up for renewal	*"The lower part of the Cardrona River bed is a disgrace ..."*
51	Reserve decision until 2021, when more information on the catchment is known.	*"The lower part of the Cardrona River bed is a disgrace due to the weeds and pests."*
52	B - 1,000 l/s	*"Supports continuity for existing users. The lower river has very limited natural and ecological appeal."*
53	B - 1,000 l/s	*"This is closest to maintaining the acceptable and manageable current position."*
54	Reserve decision until 2020/2021, when the deemed permits come up for consideration and more information is available.	
55	Should be assessed at a later date	*"Should not cloud issues around minimum flow plan change."*
56	Should be off the table for now	*"Inappropriate to negotiate this currently."*
57	Wait until more information is available	*"Cannot comment as not enough information available on effect of primary allocation at present or higher rates for future consents."*
58	Wait until more information is available	*"A decision cannot be made at this stage. More information required re water flows."*
59	Wait until more information is available	*"Not enough data to make an informed choice on future consent applications."*
60	Reserve decision until 2021.	*"... allocations will be much different in 5 yrs time. Ownership will change and many other things will impact like subdivision types of applications, skifield development and economics. As long as we get surety for the next 5 yrs on present allocation we can plan accordingly."*

Respondent ID	Preferred option [2]	Comments/ Reasons
62	A - 500 l/s	*"The aquifer(s) is/are a little more complicated than has yet been revealed. We have seen the desert made by the overextraction of gravel and the flooding damage attributable thereto. The current gains need to be evaluated before we charge of on a new uncharted direction."*
63	Unlimited water extraction	
64	Reserve decision until 2021, when there will be more information available.	*"There is too much uncertainty with this minimal flow but in 2021 the primary allocations will be finalised and there will be more concrete evidence on what is needed to change or not change."*
65	B - 1,000 l/s	*"We require the current irrigation to provide feed for stock through the dry months and to harvest hay for the winter months."*
66	B - 1,000 l/s	*"We require the access to the natural supply of the water environment to sustain the historical farming activities …. The water is the livelihood of our existence, not to be confused with the wishes of a few opinions regarding the aesthtics of a dry river bed."*
67	Put on hold	*"I feel this ruling is premature ..... I feel it is being rushed through hoping people will not notice as the bigger issue is the minimum flow that has people's attention. I also feel this issue should not be put up for the general public to have a say, when most of them have no idea what it is about. It should be for affected people only to comment."*
69	Reserve decision until 2021, when we have all our systems in place.	*"Basically we need time"* *"This does not affect the general public and as such there should be no public consultation. The primary allocation should be set through consultation with the landcare group and current water users…."* *"There is a sinking lid policy in place currently and the need for a sensible outcome is essential. The default limit of ½ the MALF (600ltrs) is too low and the estimated current use is too "guess like" therefore I believe the amount of primary allocation should be the same as the area able to be irrigated in the catchment ie: if there are 100ha able to be watered then there should be water in primary allocation for 100ha. "*
71	Decision should be shelved until the minimum flow is agreed. Then a short time frame for primary and secondary allocation should be discussed & set with major stakeholders only.	

Preferred Options for groundwater

Respondent ID	Preferred Option [3]	Comments/ Reasons
I	5Mm3/yr	*"Make optimum use of water. Secure water for public water supplies. Look at transferable water takes. Option 1 plus water in excess to be made available."*
II	5Mm3/yr + Restriction level should be applied to the entire aquifer.	*"Amount extracted should reflect the amount required to replensish the aquifer.... Build our water resource, do not just maintain or exploit it."*
III	5Mm3/yr + Restriction level should be applied to the entire aquifer.	*"Ensure that MAV is less than aquifer recharge."*
IV	Reserve decision until more information is available.	*"Plenty of water for everybody."*
V	5Mm3/yr	*"Continuity and peace of mind for existing consent holders."*
VI	5Mm3/yr	
VII	8Mm3/yr + Restriction level	*"Protects the aquifer but maximises investment opportunity."*
VIII	8Mm3/yr + Restriction level	*"Economic growth is important for the area."*
IX	8Mm3/yr + Restriction level	*"I believe it is important to continue access to groundwater for agricultural purposes. Higher MAV is unlikely to impact on the flows of Bullock Creek."*
X	8Mm3/yr + Restriction level	
XI	8Mm3/yr + Restriction level	*"Farming must be encouraged to maintain a balance to tourism in this area."*
XII	8Mm3/yr + Restriction level	*"With the increased level of lifestyle blocks (east of the Cardrona) it is important to encourage agricultural use of those blocks to protect the region's productivity. Groundwater in most cases is the only way to achieve this."*
XIII	8Mm3/yr + Restriction level	*"Allows new investment and economic growth."*

[3] Where respondents did not like any of the options presented by ORC and proposed an alternative option, we have shown the alternative option as the preferred option.

Respondent ID	Preferred Option [3]	Comments/ Reasons
XIV	Other	*"The affected people should be commenting on this, not the general public."*
XV	Other	*"As I am just a general public person, and not really affected I am not able to make comment on something I kow very little about. People are entitled to live on 10 acre blocks .... if restrictions are imposed on the farming irrigators then these people should be restricted as well."*
XVI	5Mm3/yr	*"There's enough consented take I'm sure they all don't need. I think with better irrigation technology now and the ground in question would have been irrigated under the old station holders' water rights anyway."*
XVII	5Mm3/yr	*" Life-stylers..... must be made aware that they cannot irrigate with this water. They have to go through the* [same] *process* [as] *farmers …"*
XVIII	5Mm3/yr	*"All the areas in consideration will have been irrigated in the past. With modern techniques there should be enough under Maximum Allocation Volume to satisfy new consent applicants, as a lot of bore and consent holders have more than their use needs."*
XIX	5Mm3/yr	*"Surety of supply is important for existing consent holders. Everybody should bear the cost of maintaining aquifer levels. Risks and costs should be spread equally. Boundary between aquifer zones in Option 2 should be based on science, not political convenience."*
XX	5Mm3/yr	*"For bore water levels it is the day to day level of the water in the aquifer that is critical, rather than the yearly allocation. The maximum daily use of consented groundwater takes at present totals approximately 32,500m3. This is equivalent to a yearly total of 11.8Mm3. This could give a mean drop of 1.6metres in bore water levels."*
XXI	5Mm3/yr	*"Although I have some confidence in ORC science I favour a conservative approach as we are dealing with something that is largely unknown. Even at present extraction rates there have been problems with some residential bores on the periphery of the aquifer. Particularly along the base of the hill around Mount Barker.* *If a larger limit is decided on I favour limits being put on all takers after a certain tipping point has been decided on. [Current] restriction zone punishes users in the WTRZ east of Morris Rd boundary and rewards those in the west. All water takers should bear the cost of maintaining groundwater levels."*

Respondent ID	Preferred Option [3]	Comments/ Reasons
XXII	5Mm3/yr	*"Tending to option 1, but feel there is not enough information to make an informed decision."*
XXIII	8Mm3/yr + Restriction level	*" I don't really feel informed enough to decide. I found it hard to find clear information to make a reasoned choice…."* *"Some questions:* ➢ *How much is current recharge? Is it constant?* ➢ *How many ltrs does the aquifer hold ? Do we know? Is it accurate?* ➢ *What effect will 8 vs 5 million ltrs have on the stability of the aquifer?* ➢ *How many business/properties are affected by option 2 with the restrictions? Are they better off than under option 1?* ➢ *If limit is set at current level what happens if surface takes want to change to bores?"* *"The aquifer info has been provided mostly at questions during meetings but is not in the documentation or online for them. Not in one doc anyway."*