

ARAWA CANOE CLUB

Submission regarding the Central Plains Water Trust applications for Resource Consent to take and use water from the Rakaia and Waimakariri Rivers, and related applications.



BACKGROUND

Introduction

1. My name is Ken Livingston, and I am immediate past President of the Arawa Canoe Club. I started kayaking in 1995, paddling a range of rivers up to grade 4 (the range goes to grade 6, with the Waimakariri and Rakaia Rivers reaching grade 2 in places, at most flows). I have been racing kayaks since 1997 in multisport (culminating in a 3rd place in the Coast to Coast teams event, and 1st individual veteran, plus fastest kayak times in a team in the Mount Cook Race) and pure kayak racing events (2nd in the doubles Twizel kayak marathon three times). I have been on the committee of the Arawa Canoe Club in various positions since 1998.
2. I hold a Bachelor of Business Studies, and in my role as a Business Analyst I need to quickly gain an understanding of client businesses, get to the core of their problems, and recommend practical solutions that can work for the benefit of all parties. Analysis of kayaker requirements, and how they fit with the Central Plains Water Scheme, fits my professional skills so I am well placed to represent the Arawa Canoe Club.
3. I have consulted in depth with my committee and very experienced kayakers both within and outside the club, and have prepared this evidence based on their inputs and my own experience.

The Arawa Canoe Club

4. The Arawa Canoe Club began in 1968, and now, with over 450 members, is the largest kayak club in New Zealand – bigger than the two biggest clubs in Auckland put together, and we are still growing at 5-10% per annum. The Club is affiliated to the New Zealand Recreational Canoeing Association and Canoe Racing New Zealand.
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- A photograph of the Arawa Canoe Club building. The building is a modern, two-story structure with a light-colored facade and a prominent ramp leading to a dock on the water. The dock is made of concrete and has several wooden planks extending into the water. The building is surrounded by greenery and trees, and there are mountains in the background.
5. Our focus is kayak racing – on flat and moving water. Eighty percent of our members are multisporters, which means they train and race on moving water such as the Waimakariri and Rakaia Rivers (as opposed to flat water, like the Avon River or lakes). River races are usually 10-25km long, with the longest being the 70km Waimakariri Classic section mentioned in section 13.2 below.
 6. We have a strong junior membership (44 juniors, not counting those as part of our 83 family members – April 2008), with an increasing number of schools showing an interest in multisport and kayaking. Our club building (photo above) on Kerrs Reach, alongside the Avon, has storage for 165 boats (photo below) with a waiting list of 24 for kayak storage, and we are planning to double the storage area within the next two to three years.

Multisport boats, paddles and gear

7. Multisport boats are typically long (5.2 to 6.5 metres), reasonably light (usually around 13kg) and have a rudder over the stern (rather than underneath the boat) which can kick up in shallow water. Construction of multisport boats varies according to budget, but could be fibreglass, carbon fibre, Kevlar or a mix of those. Most boats cost around \$3000 new.



8. Paddles are mostly carbon fibre, or a carbon/Kevlar mix, most have aluminium tips to better take impacts with the riverbed, and cost around \$400-\$500.
9. Helmets, lifejackets and sprayskirts round out the essential gear, and there are other useful items such as buoyancy bags (mandatory for most river races), drink systems, drybags with safety gear, and so on.

THE RIVERS

10. The Rakaia River isn't often used by Arawa Club members, and the proposed intake is below the section where our members usually get out of the river¹. However, the lower Rakaia River is used by other kayakers, and their requirements for safe intake structures and in-riverbed diversion structures apply equally to the Rakaia consent applications as ours do for the Waimakariri.
11. Arawa members mostly use the Waimakariri River – its proximity to Christchurch makes it a fabulous racing and training ground, where most club beginners get their first moving water experience and international level paddlers can get some serious long-distance training.
12. A lot of the appeal of both rivers is their variability – the rivers' natures change with different flows, and the channels change from week to week or even day to day – it's like paddling a different river every time, but with familiar landmarks and surroundings.

Waimakariri River sections

13. The Waimakariri River has two main sections used by kayakers -

- 13.1. **Lower Waimakariri** - typically McLeans Island pylons to State Highway 1 bridge, although sometimes the run from The Willows (Thompsons Road – 25km upstream of the Highway 1 bridge) is used, and occasionally an event is run from the Gorge Bridge down to SH1 bridge.

This is the section that will be most affected by draw-off from the Waimakariri by CPW and A-class water users.

¹ Walter Lewthwaite Brief of Evidence 31/1/08, paragraph 36

13.1.1. Because this section is so close to Christchurch, it is the most common teaching and training ground for multisport kayakers. The lower Waimakariri is used almost every weekend throughout the year by the full spectrum of paddlers - from out-and-out beginners to international level kayakers. It is the ideal place to experience moving water in a kayak. The results of this year's survey of club members indicates over 3900 kayak trips occur each year on the lower Waimakariri by club members alone (see the Survey summary – Appendix), and this will continue to increase as the club continues to grow.

From late June to mid August the Whitewater Canoe Club holds their Brass Monkey kayak racing series - 5 fortnightly Sunday morning races from the McLeans Island pylons to the SH1 bridge. Each 12km race attracts up to 200 competitors.

In September/October/November several Spring series races are run by the Arawa Canoe Club and other organisers. They are usually held on a variety of sections between the Willows and Brooklands Lagoon. The races range from 10 to 25km, and attract 15-40 athletes.

(Race organisers typically make a reconnaissance run down the course a day or two before each race to check for specific hazards, which are advised to kayakers in a pre-event safety briefing, so a consistent flow between reconnaissance and race times helps ensure that reconnaissance findings remain valid).

13.1.2. Ideal flow for kayaking this section is about 80-200 cumecs. Lower flows (less than 60 cumecs) damages boats and paddles as kayakers cross the shallow braids.

A racing kayak will float in 10cm of water, but needs up to 1 metre of depth to run freely (without bottom drag – a hydrodynamic 'feature' that sucks the tail of the boat down so that it seems to be climbing a wave, and feels like paddling in treacle). A kayaker needs 40 - 50cm of water to put in a proper paddle stroke (with the whole blade nearly vertical in the water).

Low flows means paddles crash into the river bed more often, which smashes the blade tips (even those reinforced with aluminium inserts). Kayak hulls get abraded by repeated groundings, and they often get impact damage from hitting rocks and tree stumps exposed by the lower river levels. In longer races, paddlers carry duct tape so that repairs can be made to the kayak during the event if necessary, so they can continue the race.

13.1.3. At low flows the river tends to follow a single, narrow channel that carries kayakers close in to the willows, which are a significant safety issue, particularly for beginners, because a body drifting against their branches gets sucked down and pinned underwater. At its worst, the whole river funnels into the willows, with no alternative braids or escape routes, which is very dangerous for all paddlers. The only option is to run aground and carry the kayak around the hazard, but this is entirely contingent on recognising the danger with enough time (and boat control) to pull over and get the boat out of the river – which cannot be guaranteed for beginners.

13.1.4. One of the appeals of this lower, braided section, particularly when racing, is the variability of depth as kayakers move downstream, because it takes concentration, skill and experience to find, and stay in the deeper, faster water. The shallow patches need a change of paddle technique to keep the boat moving quickly, and picking a wrong line

can mean giving the advantage to a competitor. At low flows it becomes more of a challenge to avoid running aground altogether (and thereby giving away the race to a competitor).

13.2. **Upper Waimakariri** – The 70km from Mount White Bridge to the Waimakariri Gorge Bridge – essentially the Coast to Coast and Classic River Race course – is a world renowned section of moving water for kayakers. This section ends with 10km of braids from Woodstock down to the Gorge Bridge.

13.2.1. The results of this year's survey of club members indicates over 1260 kayak trips occur each year on the upper Waimakariri by club members alone (see the Survey summary in the Appendix), and this will continue to increase as the club continues to grow.

13.2.2. The Club holds its premier river race, the Waimakariri Classic, down the same section as the Coast to Coast (Mount White Bridge to the Gorge Bridge) on the first Saturday of every December. The race attracts up to 150 competitors from all over New Zealand, plus some athletes from Australia and further afield, many of whom use it as a practice run for the Coast to Coast race. This year will be the 19th consecutive Waimakariri Classic.

13.2.3. The Coast to Coast is usually held on the second weekend of February, with the kayak section on the Saturday, and has about 800 competitors on the water, plus safety craft of all descriptions.

13.2.4. Training for the Classic and the Coast to Coast occurs most weekends from the beginning of October until the event, with numerous commercially guided kayak trips on weekdays over the same period. Throughout December and January, competitors train on the course daily, firstly to get the training miles done, secondly to find the fastest lines to gain an advantage on race day, and thirdly to understand the hazards and best tactics at different flows.

13.2.5. If the river level is extraordinarily variable in a season, paddlers will take time off work during the week to train on this section when the flow is reasonable.

13.2.6. There are several reasons why this section appeals to kayakers:

- It comprises several distinct river types – braided streams, technical rapids (such as the Rock Garden and Hamilton's Rapid), and various features in the Gorge, typically bluffs, 'holes' (big hydraulics formed behind rocks) and big eddies or whirlpools.
- It's a journey from alpine landscape and wide open spaces, through dramatic scenery in the Gorge, to farmland in the foothills, and the Canterbury Plains.
- At 70km, it's a long training and racing section that demands a mixture of endurance and moving water skill, and can take anywhere between 3½ to 7 hours to complete.

13.2.7. This section would be most affected by the CPW scheme if water was drawn off at the proposed Kowai Stream (upper) take-off, although there would be a very short section (100m to 200m) between the lower intake and the Gorge Bridge kayak/jetboat take-out that might present problems for kayakers at times of low flow. Both intakes present potential safety hazards to kayakers if they have to paddle close to an intake.

13.2.8. Minimum flow requirements have greater impact on the Lower Waimakariri because of its braided nature, so any regime for the Lower Waimakariri would also suit the Upper Waimakariri equally well.

CENTRAL PLAINS WATER RESOURCE CONSENT APPLICATIONS

14. The Arawa Canoe Club's opposition to the Central Plains Water resource consent applications rests on three main issues:

- River flows
- Safety of intake structures
- Safety of in-riverbed structures to divert water to the proposed upper Waimakariri intake

15. We have further concerns on four lesser issues:

- Flushing flows to clear sediment from the settlement ponds
- Structures or machinery in the riverbed during construction
- Need for ongoing consultation and feedback mechanisms
- Lack of environmental or recreational trustees on the board of the Central Plains Water Trust

River Flows

16. Clearly, kayakers are most interested in the residual river flow – what we're left with to paddle when water has been drawn for irrigation or power schemes, percolated out into the Canterbury gravel beds, and so on.

17. An April 2008 survey (see Appendix) of Arawa Canoe Club members gave a median ideal flow range between 70 and 150 cumecs, and a median minimum reasonable flow of 50 cumecs. Experienced kayakers agreed on a minimum reasonable flow of 60 cumecs, and an ideal range of 80 to 200 cumecs. A high proportion of survey respondents were relatively new paddlers (as is the demographic of any sport), but most beginners will eventually experience the full range of flows, which means we need to tailor our requirements to kayakers' future expectations and capability. Therefore we should highlight 60 cumecs as the minimum reasonable flow, and 80 cumecs as the minimum preferred.

18. Described below are the various flow ranges (measured at Highway 1 Bridge *after* the A-class water users have drawn their full allowable take of 22 cumecs), with suggested CPW take regimes (if consents are granted):

- **High flow** - above 200-250 cumecs

Only very proficient paddlers are interested in kayaking the Waimakariri at these flows.

- **Moderate to high flow** - 120 to 200 cumecs (before the CPW take)

If CPW were drawing off their full 40 cumecs, there would be enough water (80 - 160 cumecs) in the lower Waimakariri for all grades to paddle comfortably and get around most hazards.

- **Moderate flow** – 80 to 120 cumecs

If the take is consented, our ideal residual flow of *at least* 80 cumecs at the SH1 bridge means CPW's take would need to be scaled back linearly (from a take of 40 cumecs at 120 cumecs river flow, to zero at 80 cumecs), to leave us with a minimum working flow of 80

cumecs. Since 80 cumecs is our ideal minimum, a policy of 'no-take during the weekends' would give kayakers better than a 80 cumec minimum (noting that 98% of our members paddle in weekends). It takes about 12 hours for an increase in flow to work its way downstream from the Gorge Bridge to the SH1 Bridge.

- **Low flow** – 60 to 80 cumecs

Ideally, no CPW draw-off – otherwise the river becomes unnecessarily hard on boats and paddles and the effects of hazards are magnified.

If CPW absolutely has to take water from the Waimakariri while it flows at this level, we require that there be no take during the weekends.

- **Very low flow** – less than 60 cumecs

Below 41 cumecs we are all in the same boat – CPW cannot draw any water from the Waimakariri and kayakers must deal with whatever levels they find. If the CPW scheme is consented, our request is for no CPW take below 60 cumecs, particularly at weekends.

It should be noted that other kayakers and kayak clubs use the Waimakariri at different times and have different expectations than most Arawa Canoe Club members, and therefore if consents are granted then mitigation measures would need to be worked through with a fully representative cross-section of recreational users of the river.

Monitoring and enforcement

19. If mitigation measures are agreed, the Arawa Canoe Club needs some guarantee of compliance and significant penalties for non-compliance built into the consent conditions to act as a deterrent. (If it is possible to impose such penalties, we suggest something like a 0.5% gross revenue penalty for each day of non-compliance, based on average revenue over the past 12 months, with a minimum of one day penalty for any infringement duration of less than a day). Compensation for non-compliance with flow requirements after the fact would be inadequate – by that time it would be too late, and we believe CPW would need strong incentives to comply in the first instance.

Independence of monitoring

20. We request that real-time graphs or data² of CPW takes be added to the ECan river flows website, or at least to the CPW website, so that the draw-off can be publicly monitored alongside residual flow.

Intake structure safety

21. Consent application CRC 061 972³ specifies: "A steel grill shall be placed over the inlet to the intake structure and, as far as is practicable, shall be positioned such that it minimises the risk to water users." A steel grill is a sieve and, as such, poses a considerable risk to kayakers, although CPW have suggested that such a grill would slope out into the riverbed so that anything

² Cliff Tipler evidence, Consent number CRC061 939, Appendix: "The consent holder shall install and maintain a continuous flow recorder site on the inlet canal from the upper Waimakariri River intake and thus continuously record the flow in the canal. Full access to the flow records obtained from this site shall be provided to the Canterbury Regional Council upon request."

Consent number CRC 061 972 para10: "The rate at which water is taken shall be measured to within an accuracy of 10%, and the measurement and hours during which water is taken shall be recorded. A copy of the records shall be provided to Canterbury Regional Council upon request."

Consent number CRC061 972 paragraph 16. (more detail regarding calibration, electronic data, available to CRC).

³ Cliff Tipler Appendix: CRC061972, paragraph 12

washed up against it would be pushed up, rather than pinned on the grill. The Arawa Canoe Club is not satisfied that this is an adequate solution, given that any horizontal strengthening could catch a foot or equipment and there could be an accumulation of debris already pushed up around the grill at the water surface level. We need conclusive proof that the structure is safe for kayakers including, in the worst case, swimming kayakers.

22. Our limited investigations have not revealed any relevant studies that could suggest a safe intake structure. Mr Lewthwaite has suggested some possibilities⁴ without drawing any satisfactory conclusions. However, it is hard to believe there isn't a safe intake design somewhere in the world, and the onus should be placed on CPW to find one. If no such example or study is available, CPW will need to commission the requisite research to prove the practical safety of any proposed intake structure before such structures are built, or indeed, consent is granted.
23. In his brief of evidence, Mr Lewthwaite shows two intake structures – on the Rangitata and Waiau Rivers - and points out that they have been working safely over their life to date. It should be noted that the Rangitata Diversion Race intake is on the opposite side of the river from the Gorge section take-out and lower section put-in, and is at the end of a straight, flat, slow-moving section of river – most kayakers simply don't go there and, if they do, have ample time to swim to the bank before the intake. Similarly, the Amuri scheme intake on the Waiau River is on the opposite side of the river from the lower kayak take-out (the normal take-out is further upstream), although the river is narrower, faster moving and more turbulent than at the Rangitata intake.

In contrast, the proposed lower Waimakariri intake would be on the outside of a bend, in fast-moving water against a bluff, exactly where most kayakers go. Less experienced kayakers do not always recognise and respond correctly to the hazard of the bluff at present, let alone with a 40 cumec intake at the end of it. The normal kayak take-out is 100-200m further downstream, on the same side of the river as the intake.

In-riverbed structures

24. River diversion structures⁵ in the riverbed to divert flow to the intakes pose several problems to kayakers:
- a. How will a kayaker know which is the channel to the intake, and which is the natural river channel? How will they find out in time to make the decision and change course to the natural channel?

A kayaker paddling downstream would be presented with what would appear to be two equally inviting channels. Signposting the diversion isn't really feasible since floods (expected to be around 10 times per year⁶) could carry signs away, and any signage would detract from the natural character of the river and the wilderness experience for the paddler.

- b. What happens if a kayaker takes the intake channel, and arrives at the intake? Can they get out of their boat at a safe place, and get back to the natural river channel, either with a short portage or by paddling down a small 'escape channel' such as a fish race?

Getting out of a race kayak in moving water is not a simple process – usually the tail of the kayak is caught by the current and the whole boat swings out into the stream. To exit properly, a kayaker needs to turn the boat around to face upstream, and turning a 6 metre boat around usually needs reduced flow, some convenient eddies, or about 20-30m of channel width, which can be a fraught exercise in a fast, unstable boat.

⁴ Walter Lewthwaite S42A Report 4 March 2008: paragraphs 7 to 9

⁵ Cliff Tipler Appendix: CRC061941 and CRC061943, and Walter Lewthwaite Body of Evidence 31/1/08, paragraph 39

⁶ Walter Lewthwaite Body of Evidence 31/1/08, paragraph 77

At the intake itself, the natural river channel could be 1km away which would make portaging back to the main flow a very unpleasant experience over a rough riverbed. A fish bypass channel leading to the nearest major braid may be a workable alternative, provided there was sufficient volume of water to carry a kayak. Mr Glova suggests a bypass flow⁷ of at least 5 cumecs, which might be enough for a kayaker to paddle if the channel were narrow enough. This is purely speculation at this stage – there isn't enough information from CPW to truly assess the viability of this option.

- c. Any diversion structures are likely to have an dramatic impact on the natural character of the river - an obviously man-made feature in the riverbed when a kayaker has usually just spent several hours seeking out and enjoying an unmodified, wild environment.

Flushing flows

25. The CPW evidence⁸ suggests two to three times the normal take (up to 80 cumecs) would be used for flushing flows, which could present a problem to the unwary or beginner kayaker. Given that artificial flushing flows are expected to run for one to two hours, we need the assurance that they will take place after dark – when it is extremely unlikely that kayakers will be on the river.

Construction work

26. Machines or materials in the riverbed during construction⁹ need to be clearly visible from upstream, and operators need to ensure there is a clear path around them for kayakers (or worst case, swimmers).
27. Cofferdams around intakes under construction, as suggested in the CPW evidence¹⁰, would be acceptable because they offer no greater hazard than natural river features, such as bluffs.

Ongoing consultation and feedback mechanisms

28. The initial documents from CPW explained that they had “consulted” widely¹¹ with recreational groups, which was very much contrary to reality as far as kayakers were concerned. As the largest kayak club in the country, and one of the biggest sports clubs in Canterbury, the Arawa Canoe Club is hard to miss, yet we were not consulted.

(A meeting was held with a number of CPW representatives after Commissioners drew attention to the lack of consultation with recreational groups, and the Arawa Canoe Club position was explained to them. The outcome was presented in Mr Taylor's supplementary evidence¹³.)

29. As a result we have a jaundiced view of the seriousness with which our concerns are taken. We understand CPW's need for the flexibility of an adaptive management process, but our fear is that, as a small group in comparison with the Scheme, our needs or suggestions will only be given lip-service.

⁷ Gordon Glova evidence, paragraph 44, and Walter Lewthwaite Body of Evidence 31/1/08, paragraph 62 and 69 – however, this conflicts with Lewthwaite paragraph 68, which suggests a fish pass flow of 2 cumecs.

⁸ Walter Lewthwaite Body of Evidence 31/1/08, paragraph 79

⁹ Cliff Tipler Appendix: CRC061863, CRC061866 and CRC061868

¹⁰ Walter Lewthwaite Brief of Evidence 31/1/08, paragraph 63

¹¹ Doug Marsh Brief of Evidence, paragraphs 33 & 37

30. We need an assurance that kayakers are fully involved and have genuine influence with CPW regarding kayaking-related issues, ideally with an avenue of recourse to a statutory authority to ensure that any valid grievances can be heard and, if appropriate, a remedy enforced.
31. The Arawa Canoe Club wants to ensure that it is included in, or at the very least consulted by, the Community Liaison Group¹² as suggested by Mr Tipler, or more specifically, the Recreation Boating Working Party as recommended by Mr Taylor¹³. As mentioned in paragraph 30, above, there needs to be some assurance that the Liaison Group and the Working Party will be genuinely heeded by CPWT and CPWL.

Environmental trustees

32. The Arawa Canoe Club is very uncomfortable with the resignation of the two environmental trustees on the board of CPWT and that no further trustees with a similar mandate have been suggested or appointed. Should the resource consents for the scheme be approved, we insist on a condition that two environmental trustees remain on the board, with the same powers as other trustees, and that they be tasked with understanding and representing recreational interests as well.

Summary

33. In their current form, the applications for resource consent give an inadequate assurance that the recreational features of the Waimakariri River will be maintained or enhanced, and the Arawa Canoe Club recommends that the Central Plains Water Scheme resource consent applications be declined.

Ken Livingston

Media Officer and immediate past President, Arawa Canoe Club

¹² Cliff Tipler Appendix: Schedule 2: Administrative Conditions, section 7

¹³ Charles Taylor supplementary evidence 21 April 2008: paragraphs 37-40

APPENDIX – CLUB RIVER USERS’ SURVEY RESULTS

Summary of results from a survey of Arawa Canoe Club members, taken in April 2008, relating to use of the Waimakariri River. The survey was run to validate suggested river flows given by experienced paddlers and was emailed to all members.

The survey was kept deliberately short to ensure a good response rate, but was designed to capture key data.

Number of respondents: 43

Number of club members at the time of the survey: 468

Number of multisport members (potential Waimakariri and Rakaia river users): 374 (80% of club members)

Percent actual respondents versus potential Waimakariri and Rakaia river users: 11.2%

River trips

	Waimakariri trips in past 2 years		Proportion of trips over weekends
	Upper section	Lower section	
Highest #	40	120	
Lowest #	0	0	
Average # pp	6.6	20.5	Average: 84%
Total trips by respondents	284	880	Median: 98%

Extrapolating the survey results for all Arawa club multisporters gives:

	Upper section	Lower section
Total number of trips by club members <u>per year</u>	1266	3922

River flows

“Minimum reasonable flow” is the cut-off below which a planned trip would be aborted.

	Minimum reasonable flow (cumecs)	Ideal flows (cumecs)	
		minimum	maximum
Highest	80	100	800
Lowest	30	40	70
Average	52.4	66.9	175.4
Median	50	70	150

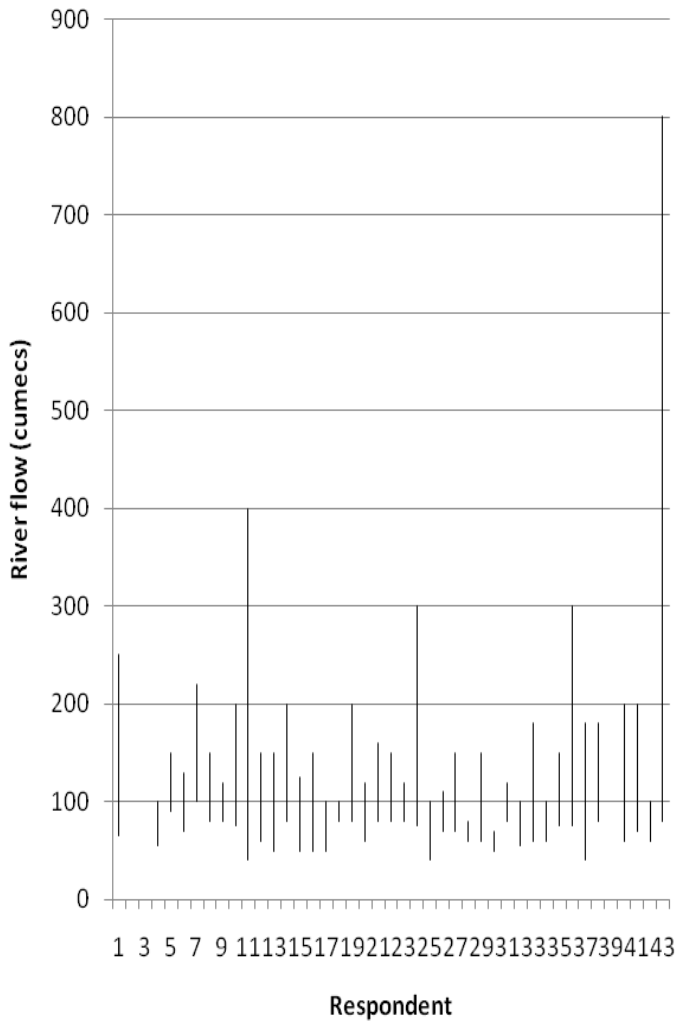
The graphs (next page) illustrate the patterns of individual responses. In general, the more experienced paddlers set higher minimum and maximum flows, which reflects:

- their knowledge of the rivers at higher flows (they know what to expect)
- their ability to recognise and manage any ‘surprise’ features
- their competence and enjoyment of more testing conditions.

The last two years have been characterised by very low river flows, which means that relatively new paddlers haven’t been exposed to a sufficient range of conditions to make a good assessment of what constitutes reasonable and ideal flows so greater weight could usefully be given to the responses of

more experienced kayakers, even though they are fewer in number, meaning that the minimum flows from the survey should be slightly higher than reported.

Ideal maximum/minimum flows



Minimum reasonable flow

