12.2. Priority Catchment Minimum Flows

Prepared for:	Council
Activity:	Minimum Flows for priority catchments and residual flows Plan Change
Prepared by:	Lisa Hawkins, Senior Policy Analyst
Date:	20 June 2018

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1. Précis

Historically a number of water quantity plan changes have been undertaken on an individual catchment by catchment basis. A revised process pulls together minimum flow setting for the Arrow River, Upper Cardrona River and Manuherikia River and a revision of the Water Plan's residual flows provisions into one plan change. This will allow Council to make its best possible efforts to achieve minimum flow setting in these catchments ahead of deemed permit replacement. This report provides an explanation on the details of this plan change, the process involved, current status and next steps.

2. Background

2.1 Why the plan change is needed

The National Policy Statement for Freshwater Management 2017 (NPSFM) sets out objectives to direct Local Government to manage water in an integrated and sustainable way, whilst providing for economic growth within set water quantity and quality limits. The following objectives are specific to this plan change:

> *Objective B1 – to safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of freshwater, in sustainably managing the taking, using, damming, or diverting of fresh water.*
> *Objective B4 – to protect significant values of wetlands and of outstanding freshwater bodies.*
> *Objective B5 – to enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing fresh water quantity, within limits.*

Setting a minimum flow for the catchments included in this plan change will help achieve these objectives, whilst also addressing Policy B1 of the NPSFM, which requires all regional plans to set environmental flows to give effect to the objectives.

Whilst Council have until 2025 to be compliant with the NPSFM, the deemed permit renewal process that is currently underway, in which all deemed permits expire in October 2021 results in a focus on those priority catchments where deemed permits are present. Setting a minimum flow for these catchments will ensure that consenting decisions are made within the limits that provide for environmental flows and the values assigned to the catchments by the community.

In imposing minimum flows on consents, those who have held deemed permits are likely to need to restrict their water takes, for example by reducing or ceasing abstraction at times of low flow. This is a significant change for those who take water now because they may not be able to take the same amount of water at the frequency they have relied on in the past. The economic considerations of such change are accounted for in consideration of how water will be used within limits.

With regard to residual flows, another management tool available to ensure the sustainable taking and use of water, the changes proposed in the plan change seek to improve and clarify existing provisions in the Water Plan.

2.2 Scope of the plan change

What is in

The Minimum Flow Plan change incorporates the Arrow, Upper Cardrona and Manuherikia Catchments. It also includes changes to the existing residual flow provisions in the Water Plan.

The objective for incorporating these catchments into the plan change is – *To set minimum flows in priority catchments for consistency in the replacement of the deemed water permits.* The Arrow catchment has 14 deemed permits, Upper Cardrona 12 deemed permits and Manuherikia 71 deemed permits.

These catchments have been selected as the priorities, based on a number of criteria, including the number of deemed water permits present, if a minimum flow would assist in evaluating deemed water permit replacements, and if sufficient science exists.

Amendments to the existing residual flow provisions are also included in this plan change. These provisions enable a residual flow condition to be set on individual consents to ensure the aquatic ecosystem and natural character associated with the water take is maintained. However, the current implementation of the residual flow provisions is unclear and can lead to long drawn out negotiations with affected parties during the consent process. With the impending deemed permit renewals this plan change seeks to improve clarity and consistency in residual flow setting.

A residual flow is different to a minimum flow as they apply as a condition on a consent, only applicable to that consent, or a group of consents as specified. A residual flow is therefore calculated at the time of granting a consent, and will differ from consent to consent depending on the values present that need to be managed. A residual flow is often, but not exclusively, set on water takes from tributaries. Whereas a minimum flow is set at a catchment level, is measured most often on the main stem of the catchment and applies to all consents in that catchment, or specific areas identified within in the catchment by the management regime that applies.

What is out

A number of elements relating to water quantity planning and setting of minimum flows are not incorporated in this plan change. These include the following:

- Catchments which haven't been identified as a priority catchment for deemed permit renewals are not included in this plan change. These catchments may still require a minimum flow to be set, or may be best managed by other methods, including the setting of residual flows on individual consents. Consideration of the remaining catchments will be part of scoping the Water Plan review and compliance with the NPSFM.
- Groundwater, other than that which is connected and managed as surface water, is not included in this plan change, as minimum flows do not apply to groundwater.
- The setting of allocation limits and addressing over-allocation is not included in this plan change. In accordance with Objective B1, the life-supporting capacity, ecosystem processes and indigenous species of a freshwater body will need to

considered in sustainably managing water takes and hence setting allocation. The economic well-being of the communities (Objective B5) will then need to be considered within these limits, including any minimum flow that may be in place. Whilst there is work that will need to be done to ensure the Water Plan gives full effect to the NPSFM, more time is needed for investigations and discussions with the community on this matter. As such allocation will be incorporated into the program for a full Water Plan review. Whilst subject to the Water Plan review, the existing policies in the Water Plan do provide a framework for allocation to be considered as part of the deemed permit replacement process.

In accordance with NPSFM a progressive implementation program must be prepared by December 2018. These considerations listed above will form part of the investigations in developing this plan and where appropriate will be part of future plan changes.

3. Proposal

Set out below is the current status of work on the plan change.

3.1 Information sessions

On Thursday 7 June and Monday 11 June a consultation session with Schedule 1 parties and information sessions with industry bodies, key stakeholders, irrigation companies and the general community were held regarding the new process for the plan change. Details of the work undertaken to date and draft minimum flow numbers and residual flow provisions were also presented. These sessions were attended by over 100 people.

Some of the key questions that were raised during these sessions that apply across the whole plan change are set out below:

Q: What complaints / issues have been raised in each catchment that the minimum flows will address?

Minimum Flows are not set based on complaints or issues that are received. We set minimum flows to provide a management regime that will look after the values of a river during periods of low flow. Low flow periods pose a “crunch time” for aquatic ecosystems as habitat and food availability for many aquatic organisms tends to decrease. Minimum flows alleviate the additional, or unnatural, stress caused by human users during these “crunch times” in order to provide for aquatic values. By doing this we achieve the objectives of the NPSFM in safeguarding life-supporting capacity, ecosystem process and indigenous species.

Q: Is it just the environmental bottom line, is that what we are working to?

In setting the minimum flows we have to ensure the flows achieve the NPSFM objectives, which predominately relate to ecological and human health outcomes (Objectives B1 and B4). Objective B5 provides recognition of providing for the economic well-being of the communities but this is subject to ensuring water management takes place within the limits of the minimum flow set to safeguard life-supporting capacity, ecosystem processes and indigenous species.

Q: Why can’t we consider a variable minimum flow to provide flexibility in the driest years?

The minimum flow is set at a value where safeguarding the life-supporting capacity, ecosystem process and indigenous species of a river during low flow is managed. It reflects a point where it is no longer socially, culturally and environmentally acceptable

to continue to abstract water from the river. As a result, a staged minimum flow that reflects dry years is not considered appropriate because the driver for such an approach is allocation and not setting a limit that gives effect to NPSFM objectives.

3.2 Plan change details

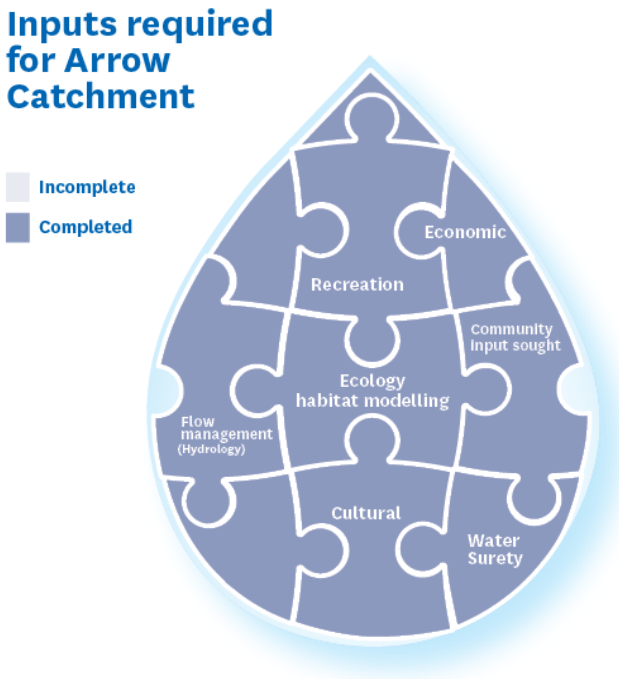
Each of the catchments is at a different stage in development and as such different levels of investigations have informed the draft flow numbers that have been calculated. Set out below is a summary of each catchment, and the current status of work that has informed the numbers presented.

Arrow catchment

A minimum flow at Cornwall Street is proposed at 800 litres per second. This level is similar to the lowest flows experienced in 2015/16. A minimum flow at this level provides for habitat retention for trout, as well as managing the growth of nuisance algae. These were both important values identified by the community.

In addition, a supplementary minimum flow of 1050 litres per second is proposed. A supplementary minimum flow allows for supplementary water takes to be granted. This enables these water takes to occur when the river is experiencing higher flows. The supplementary takes will be subject to the supplementary minimum flow, and will be restricted from taking when the river reaches that flow. This therefore allows primary water takes to continue until the primary minimum flow is reached and restrictions are in place. The methodology which applies in setting the supplementary flow for the Arrow River is – Supplementary minimum flow = primary minimum flow (800 l/s) + allocation block of 250l/s.

All technical reports which inform the minimum flow limits have been completed for the Arrow catchment.



Key Statistics

7-day Mean Annual Low Flow (MALF)	1,440 l/s
Number of water takes (includes deemed permits)	22
Number of deemed permits	14
Number of deemed permit replacements currently being considered by ORC	0

Upper Cardrona catchment

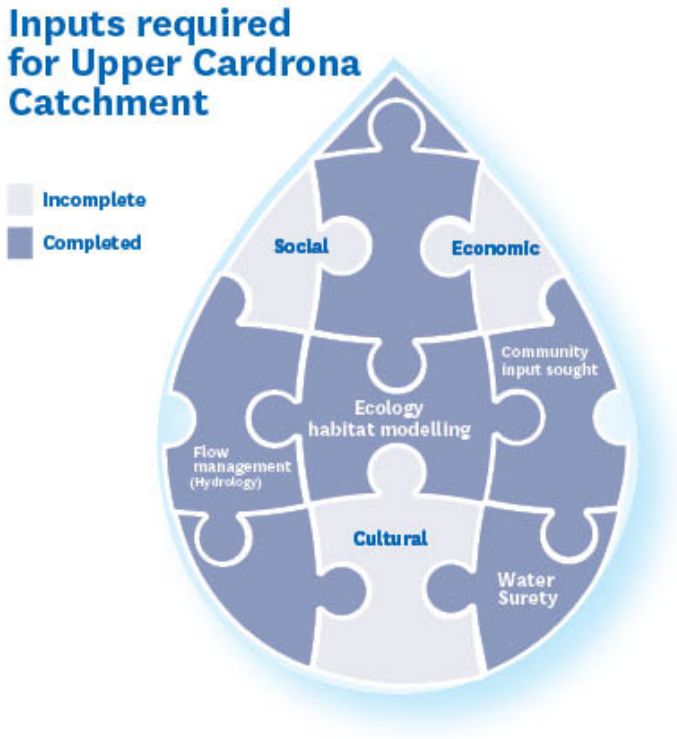
The Cardrona River has three distinct reaches:

- a neutral reach located upstream of the Mt Barker flow monitoring site, in the part of the catchment referred to as the upper catchment
- a losing/drying reach located between the Mt Barker flow monitoring site, where surface flow is lost to the Wanaka Basin-Cardrona Gravel Aquifer; and
- a gaining reach located downstream of SH6, where the Cardrona River receives inflows from Wanaka Basin Cardrona Gravel Aquifer at a recharge rate that is currently estimated to be 300 L/s.

Surface flows and important values (aquatic ecosystems, natural character and amenity values, cultural values and recreational values) that exist in the upper Cardrona can be managed in an effective manner by setting a minimum flow at the Mount Barker flow monitoring site. This will apply to surface water takes and connected groundwater takes upstream of the Mt Barker flow monitoring site.

Downstream of the Mt Barker flow monitoring site, in the so-called losing and gaining reaches, the hydrology is much more complex due to the river's interaction with groundwater in the Wanaka Basin-Cardrona Gravel Aquifer. Hence, further work is required to develop an appropriate management regime. This is likely to involve minimum flow and residual flow restrictions and will need to consider allocation limits for the aquifer. We are currently collecting more flow data and groundwater level data.

Dual minimum flows at Mt Barker are proposed for the Upper Cardrona catchment. A summer minimum flow of 700 litres per second, from 16 November to 15 May; and a winter minimum flow of 2000 litres per second, from 16 May to 15 November. This dual approach recognises the need to maintain flow variability across seasons, an important aspect of the natural character of this river. The summer minimum flow will safeguard the visual appeal and natural characteristics of the river above Mt Barker and will provide for 70 per cent trout habitat retention in this reach. The winter minimum flow enables flow continuity across the entire main stem of the Cardrona outside of the peak irrigation season in summer. A supplementary minimum flow of 3100 litres per second is proposed. Social, economic and cultural reports are yet to be completed for the Upper Cardrona catchment.



Key Statistics

7-day Mean Annual Low Flow (MALF)	1,180 l/s
Number of water permits for full catchment	43 (incl. 14 deemed permits)
Number of water permits above Mt Barker	35 (incl. 8 deemed permits)
Number of water permits below Mt Barker	9 (incl. 8 deemed permits)
Number of deemed permit replacements currently being considered by ORC	0

Manuherikia catchment

A range of minimum flow limits, have been provided for three flow sites within the Manuherikia catchment:

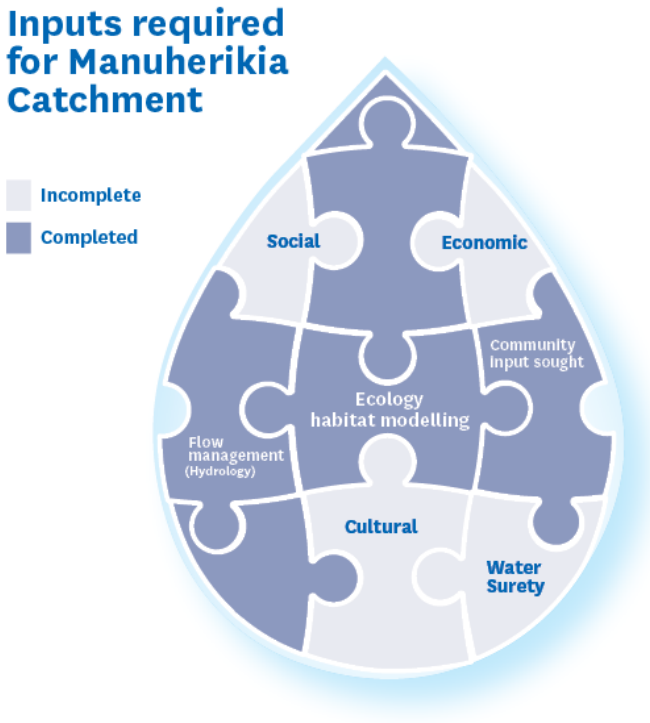
- 400 to 600 litres per second at Dunstan Creek
- 1500 to 1750 litres per second at Ophir
- 1250 to 1600 litres per second at Campground

These numbers have been informed by hydrology and ecology work that has been completed, with an increase in trout habitat at the sites being identified for these flows. The management approach that would currently apply in setting these minimum flows is:

- Ida Valley is excluded from being subject to any minimum flow for the Manuherikia River, with the exception of water that is delivered to the Ida Valley from the Manuherikia River.
- Water takes from Dunstan Creek will be subject to the Dunstan Creek minimum flow only.
- All water takes above Ophir (both main stem and tributary takes) will be subject to the minimum flow at Ophir and Campground (with the exception of Dunstan Creek).

- All water takes between Campground and Ophir (both main stem and tributary takes) will be subject to the minimum flow at Campground.

Irrigation and water surety have been identified as key values from the community. Social, economic and cultural reports are yet to be completed for the Manuherikia catchment. At the moment the minimum flows for each flow site in the Manuherikia catchment are presented as ranges. As these reports are finalised the minimum flow limit will be narrowed down for each flow site to provide a final figure for notification.



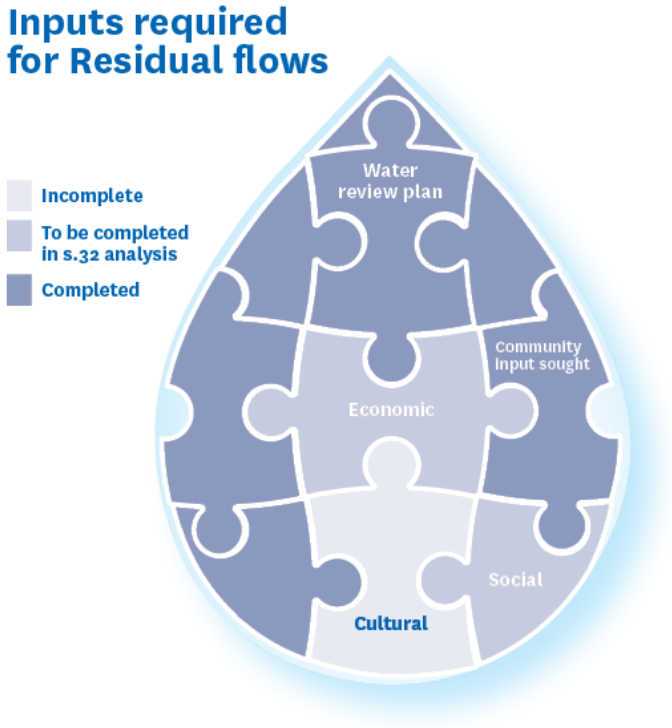
Key Statistics

7-day Mean Annual Low Flow (MALF)	Ophir 2,600 – 3,200 l/s Campground 3,100 – 4,700 l/s
Number of water takes (includes deemed permits)	220
Number of deemed permits	71
Number of deemed permit replacements currently being considered by ORC	3

Residual Flows

The provision to set residual flow conditions on consents already exists within the Water Plan. Feedback from stakeholders and the consents team has prompted a review of these provisions to ensure they are effective and efficient. This review focussed on the following – ensuring the values considered are appropriate; providing flexibility to support group applications and the location where a residual flow is set and measured, and provide clarity on what is being considered when setting a residual flow.

This review has resulted in proposed changes to the wording of the existing policy to provide for the desired flexibility, confirmation of the existing values around aquatic ecosystems and natural character, and introducing a method by way of a list of parameters that identify what is and isn't considered when setting a residual flow.
We are currently seeking cultural input from Iwi on the proposed changes, specifically on whether the existing values adequately address cultural considerations.



3.3 Resolution of Council meeting 13 June 2018

At the Council meeting 13 June 2018, the following resolution was made:

- That 31 August is confirmed for notification subject to Minimum Flow figures and missing section 32 components being completed and brought to the Council and brought to the communities.

This resolution guides the next steps in the process as set out in the section below.

3.4 Next steps

Catchment Focus discussions

A series of Catchment Focus Discussions with targeted members of the community and stakeholders have been planned and will explain the technical details (science) behind the minimum flow numbers that have been set for the catchment. The sessions will be supported by ORC Policy Staff. These discussions will provide an opportunity for in depth conversations around key elements that may be of concern for the interested parties, along with providing the opportunity for information and data sharing with Council. The summary program of these discussions is identified in the table below:

Catchment / Stakeholder Group	Date and Location
Stakeholder and interest groups	29 June 2018 - Dunedin
Arrow catchment	3 July 2018 - Arrowtown
Cardrona catchment	2 July 2018 - Cardrona
Manuherikia catchment	4 – 5 July 2018 - Omakau

Further work required

As identified in section 3.2 of this report, a number of reports are required to finalise the assessment for minimum flows. These reports as set out below are underway at the moment and we expect them to be completed over the coming months.

Residual Flows:

- Input from Iwi on cultural values.

Cardrona catchment:

- Economic and social assessment

Manuherikia catchment:

- Cultural assessment
- Water surety assessment
- Economic assessment – (dependant on the completion of the water surety assessment)
- Social assessment – (dependant on the completion of the economic assessment)

In accordance with the resolution from Council meeting 13 June, at the completion of these reports they will be presented to Council for discussion. These documents will also be made available to the community as they are completed.
The finalisation of these reports, in particularly the water surety work for the Manuherikia assessment, may require further information and hence this may have implications for the timeline for notification. Best endeavours remain to achieve notification by the end of August, however there are a number of factors that could influence this.

4. Recommendation

a) For Council to note this report.

Endorsed by: Tanya Winter
Director Policy, Planning & Resource Management

Attachments

Nil