

## Minimum flows and allocation limits – river by river narrative summary

Reasoning behind recommendations for minimum flow and allocation limits. All references to habitat objectives recommended by the Ruamāhanga Whaitua Committee (the Committee) relate to the provision of habitat for torrentfish at low flows.

### Kopuaranga River

The existing minimum flow in the Kopuaranga River (270 L/sec) almost provides for the level of fish habitat protection (90% habitat available at MALF) the Committee are seeking. Combined with the PNRP allocation limit (180 L/sec), this minimum flow is likely to result in only marginal changes to key indicators of low to mid flow regime (i.e. increase in duration of low flows and reduction in median flows). However, a small increase to the minimum flow of 10 L/sec to 280 L/sec was seen as desirable to more fully meet the 90% habitat objective. In-stream benefits of this small change alone are unlikely to be substantial; correspondingly the impact on reliability for existing users is unlikely to be significant.

The Committee supports recommending capping allocation amounts at the existing consented use (150L/sec). The apparent headroom in water availability in this catchment (30 L/sec) under the PNRP regime is almost all taken up by existing permitted activities (estimated to be about 20 L/sec). The Committee felt that when the level of permitted activity use is taken into account, no further consented use can reasonably be justified. Together this cap on allocation amounts and the tightening of minimum flow is considered appropriate to afford the river with a greater level of future resilience (including under a drying climate).

### Waipoua River

The existing minimum flow (250 L/sec) for the Waipoua River provides for a relatively low level of fish habitat protection (about 70% habitat available at MALF) compared with other rivers. While it could be considered adequate in terms of safe guarding life supporting capacity, this level of protection is at the very lowest end of the range of minimum flows considered acceptable for this type of river. The Committee preference is to increase the minimum flow to 340 L/sec, a level at which 90% of habitat is protected and the risk of adverse instream impacts is reduced.

Supporting the recommendation to increase the minimum flow on the grounds of habitat protection is a Committee wish to treat the Waipoua as a 'model river' for urban and rural good management practice. It is a river with high visibility and value to a broad cross section of the Wairarapa community. It is also characterised by very low summer flows (drying reaches in some places), warm water temperatures, poor water quality at times (including toxic algae blooms) and a degradation of recreational opportunities (e.g. Tanks Pool). While minor flow augmentation by way of increasing the minimum flow will not solve these issues, small gains in the amount of water held in the channel at low flows is considered an important part of the overall package to improve the river condition. Furthermore, the Waipoua River is expected to experience more severe summer flow recessions in a

warming climate and the increased minimum flow will provide some additional counter measure to this (by at least reducing the extent to which abstractions exacerbate low flows).

Similarly to the Kopuaranga River, the Committee wishes to cap allocation in the Waipoua River at existing consented use (130 L/sec) rather than allow the additional 15 L/sec that is potentially available under the PNRP to be taken up. This provides for a better level of risk management of the river coming under pressure from a drying climate. Further, permitted activity use is estimated to be about 10 L/sec and almost fully accounts for the available headroom in allocation, meaning no further consented use can reasonably be justified.

The number of existing consent holders (nine) affected by an increase in minimum flow in the Waipoua catchment is relatively modest. However, the reduction in reliability of supply for these individuals may be significant. Further information on the economic consequences will be provided to the Committee following an economic analysis that is underway. With this in mind, it is recommended that the change to minimum flow be brought in progressively over time rather than taking immediate effect. The duration of the phase-in period will be informed by the outcomes of the forthcoming economic assessment.

## **Waingawa River**

Allocation from the Waingawa River is relatively high compared to other rivers in the whaitua. About two thirds of the water being taken for town supply (Masterton) and the Taratahi water race. A proportion of these large takes continues below minimum flows in order to provide water for domestic and stock drinking needs. Several minimum flow thresholds are described in the PNRP (1900 L/sec, 1700 L/sec and 1100 L/sec) to ensure all other types of takes in the catchment are progressively reduced as river flow drops.

The Committee wish to retain the existing PRNP minimum flow thresholds of 1900 and 1700 L/sec. These are considered to represent an appropriate balance between giving effect to the 90% habitat protection objective while maintaining existing reliability of supply for users. However, it is recommended that the lowest PNRP minimum flow (1100 L/sec) be removed. Using this flow level to manage takes would let flows fall well below the habitat objective threshold. The Committee consider that all reasonable efforts to reduce takes in the catchment should have been made before this flow is reached. Further, the 1100 L/sec threshold is currently used to manage only one existing consent; restrictions and cease takes are implemented at the higher thresholds in all other consents. Therefore the Committee recommendations effectively formalise the status quo minimum flow management levels.

Existing allocation from the catchment (1200 L/sec) is above the default allocation amount in the PNRP. The Committee has some concern about the amount of water that continues to be taken below minimum flows from the Waingawa River. These takes are primarily for public supply and water race but also includes Category A groundwater users taking for other purposes. The Committee has noted that the Waingawa River is impacted by a lack of summer flow and loss of braiding at times across the

plain near Masterton. This is further exacerbated by natural losses of the river to groundwater. Rather than reduce the overall amount allocated to existing users, the Committee's preference is to ensure that more water is retained in channel during times of water stress. This is to be achieved by increasing restrictions on taking water to just volumes necessary to provide for domestic and stock water needs and includes the requirement that Category A users taking for other purposes reduce or cease take at the same time as surface water takes.

## Upper Ruamāhanga River

The existing minimum flow (2400 L/sec) for the Upper Ruamāhanga River reach provides for a relatively low level of fish habitat protection (about 70% habitat available at MALF) compared with other rivers. This is at the very lowest end of the range of minimum flows considered acceptable for this type of river. The Committee preference is to increase the minimum flow to 3250 L/sec, a level at which 90% of habitat is protected and the risk of adverse instream impacts is reduced.

Supporting the recommendation to increase the minimum flow on the grounds of habitat protection is recognition that the Ruamāhanga River is highly valued by a broad cross section of the Wairarapa community and that currently some values are considerably compromised at times of low flow. In particular, recreational opportunities (e.g. swimming) and cultural values have been degraded. Minor flow augmentation by way of increasing the minimum flow may not solve these issues but gains in the amount of water held in the channel at low flows is considered an important part of the overall package to improve the river's health. Furthermore, the Ruamāhanga River is expected to experience more severe summer flow recessions in a warming climate and the increased minimum flow will provide some additional counter measure to this (by at least reducing the extent to which abstractions exacerbate low flows).

The Committee recommend capping allocation at existing consented use (1925 L/sec) rather than allowing the additional 520 L/sec that is potentially available under the PNRP to be taken up. Further allocation beyond current consented use is incompatible with the Committee's view on the existing condition of the river and extent to which some values have already been eroded. Furthermore, the PNRP allocation amount is over generous when viewed in the context of likely natural flow reductions under climate change.

The Upper Ruamāhanga River reach is recognised as a very important source of water for a substantial number of existing consent holders (about 60). These users will all be affected by an increase in minimum flow. The reduction in reliability of supply for these individuals may be significant. Further information on the economic consequences of increasing the minimum flow will be provided to the Committee following an economic analysis that is underway. With this in mind, it is recommended that the change to minimum flow be brought in progressively over time rather than taking immediate effect. The duration of the phase-in period will be informed by the outcomes of the forthcoming economic assessment.

## Mangatarere Stream

The Mangatarere Stream is split into an upper and lower catchment for the purposes of allocating water. The existing minimum flows for both parts of the stream are set well above MALF (240 L/sec in the upper catchment and 200 L/sec in the lower). These flows provide for a level of fish habitat protection that is more protective than other rivers in the whaitua. The Committee habitat objective is already met by these minimum flows and no justification was seen for increasing the minimum flows further, especially given the relatively low reliability of supply water users already experience in this catchment.

The Mangatarere Stream is highly allocated, with existing consented use of 475 L/sec equating to significantly more than the MALF at the bottom of the catchment. The stream is also known to suffer from poor water quality and ecological health at times. The highly protective minimum flows are intended to offset to some extent the worst impacts of this high level of allocation. A reduction of the minimum flows could therefore only be considered if allocation was significantly reduced.

While the high level of allocation and poor water quality of the catchment is recognised, there is no clear pointer to the size of reduction that would be required to see meaningful improvement in the stream. Reduction to the PNRP default amount (110 L/sec) would have a very significant impact on existing users. For these reasons the Committee preference is to cap allocation at the level of existing use (475 L/sec).

It is expected that significant mitigation of the impacts of high allocation may be achieved by requiring Category A groundwater takes to cease at minimum flow. Category A groundwater takes collectively account for about 140 L/sec and retaining this flow in the stream during the lowest flow periods is considered an important part of the recommended policy package for this catchment. Furthermore, other parts of the policy package such as supporting the Mangatarere Restoration Society efforts and strengthening restrictions at low flows on town supply and the Carrington water race are also seen as preferable to reducing allocation amount at this stage.

## Waiohine River

Like the Waingawa River, the Waiohine River supports large town supply and water race takes. A proportion of these large takes continues below minimum flows in order to provide water for domestic and stock drinking needs. Two minimum flow thresholds are prescribed in the PNRP (3040 L/sec and 2300 L/sec) to ensure takes for other purposes are progressively reduced as river flow drops.

The Committee wish to retain the higher minimum flow of 3040 L/sec. This threshold is considered to represent an appropriate balance between giving effect to the habitat objective while largely maintaining existing reliability of supply for users. However, it is recommended that the lower PNRP minimum flow (2300 L/sec) is removed. This flow is well below that which would provide for the habitat objective (2990 L/sec). The Committee consider that all reasonable efforts to reduce takes in the catchment should have been made before 2300 L/sec is reached.

Currently the 2300 L/sec threshold is used to manage the town supply and water race takes, with some amount of reduction in take required at this flow. Other than these takes, the Committee recommendations are effectively formalise the PNRP minimum flow management flow. The Committee recommends that town supply and water race takes should further reduce their takes from current levels at the 3040L/sec minimum flow to just those volumes necessary for the domestic and stock drinking needs.

Total existing allocation from the catchment (1005 L/sec) is moderate but below the default allocation amount in the PNRP (1590 L/sec). The Committee view the PNRP allocation amount as too generous and recommend capping allocation at the existing level of use. The reasoning for this is similar to the other rivers in which there is potentially some allocation headroom on paper; further allocation would be incompatible with the Committee's view that more resilience needs to be built into the river management regime to counteract the likely future impacts of climate change. Furthermore, the Waiohine River is high value waterway, especially for recreation and water quality, and the Committee do not want to accept the risk that further allocation might erode these values.

### **Tauherenikau River**

Two minimum flow thresholds are given in the PNRP (1300 L/sec and 1100 L/sec) to ensure takes from the Tauherenikau River catchment are progressively reduced as flows drop.

The Committee wish to retain the 1300 L/sec minimum flow as this is considered to represent an appropriate balance between giving effect to the habitat objective while largely maintaining existing reliability of supply for users. However, it is recommended that the lower PNRP minimum flow (1100 L/sec) is removed. This flow would be below the 90% habitat objective threshold for this river (1200 L/sec). The Committee consider that all reasonable efforts to reduce takes in the catchment should have been made before 1100 L/sec is reached. As only one existing resource consent uses the 1100 L/sec flow, this recommended change is minor.

Total existing allocation from the catchment (235 L/sec) is moderate but below the default allocation amount in the PNRP (410 L/sec). However, the Committee view the PNRP allocation amount as not protective of reducing low flows in a drying climate and recommend capping allocation at the existing level of use. The reasoning for this is similar to the other rivers in which there is potentially some allocation headroom on paper; further allocation would be incompatible with the Committee's view that more resilience needs to be built into the river management regime to counteract the likely future impacts of climate change.

### **Lower Ruamāhanga River**

The existing minimum flow (8500 L/sec) in the Lower Ruamāhanga River reach (which extends from the Waiohine River confluence to the Lake Wairarapa outlet) looks at first glance to provide a relatively low level of fish habitat protection (just under 70% habitat available at MALF) compared with other rivers. However, recent flow/habitat calculations by the Cawthron Institute have shown that this minimum flow is still meeting the 90% fish habitat objective set by the Committee. This is because the

morphology of the Ruamāhanga River in the lower reaches is quite different to the upper reaches and tributary rivers, having more runs and pools than riffles. This difference in morphology means lower flows can still support a good amount of fish habitat. Therefore no change to the existing minimum flow is recommended.

Allocation from the Lower Ruamāhanga River reach is high (2445 L/sec) as a proportion of low flow and is substantially higher than the PNRP default amount (1240 L/sec). The Lower Ruamāhanga River is unusual in the whaitua in that the overall impact of abstractions on this reach is determined more by the ratio of total upstream allocation with river flow than by the takes specifically within its length. When a comparison of overall catchment takes is made, existing allocation (8045 L/sec) is proportionally closer to, although still higher than, the PNRP allocation amount (7535 L/sec) for the full river catchment.

The Committee considered what changes to allocation amounts may be necessary in the Lower Ruamāhanga. The difference between the PNRP allocation amount and existing use is in the order of 500 L/sec. There is no clear evidence to suggest an adjustment to the allocation from the lower river reaches will result in meaningful benefits. This is especially so because most of the allocation in this zone occurs in the bottom half (below Waihenga) where the form of the river comprises connected runs and pools, even at low flows. At this stage the Committee preference is to achieve improvements in overall river condition in the lower reaches through the cumulative effect of all policy implementation in the catchment, rather than shifting the allocation amount.